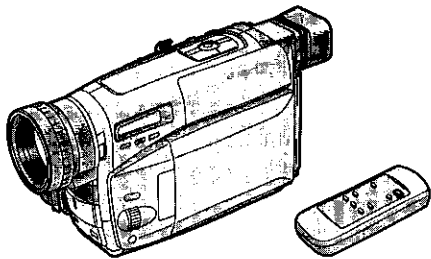


Panasonic

S-VHS-C Movie Camera

Operating Instructions

NV-VS7B



Model No. **NV-VS7B**



S VHS C VHS
PAL
625

Before use, please read these instructions completely.

S-VHS ET

VQT8452

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic Movie Camera. Please read these Operating Instructions carefully and keep them handy for future reference. Please note that the actual controls and components, menu items, etc. of your Movie Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.

Information for Your Safety

S-VHS-C Movie Camera

- The rating plate is on the bottom side of the Movie Camera.

AC Adaptor

- The rating plate is on the bottom side of the AC Adaptor.
- As this AC Adaptor gets hot during use, operate it in a well-ventilated place; do not use it in a tight enclosure.



Caution for AC Mains Lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced, please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover, you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME, THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO A 13-AMPERE SOCKET.

If a new plug is to be fitted, please follow the wiring code described on the right.

If in any doubt, please consult a qualified electrician.

■ IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:


Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

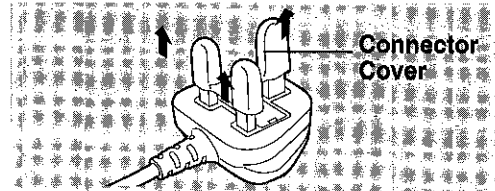
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol .

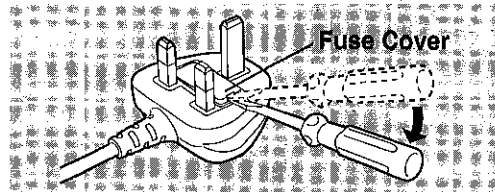
■ Before Use

Remove the Connector Cover as follows.

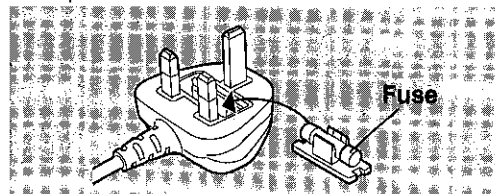


■ How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse Cover.



■ WARNING

To reduce the risk of fire or shock hazard and annoying interference, use only the recommended accessories and do not expose this equipment to rain or moisture. Do not remove the cover (or back); there are no user serviceable parts inside. Refer servicing to qualified service personnel.

■ Observe copyright laws.

Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

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Check List for the Standard Accessories

AC Adaptor Set



..... AC Adaptor (VSK0541)



..... AC Mains Lead (VJA0940)



..... DC Input Lead (VJA1128)



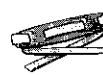
..... Battery Pack (CGR-V610)



..... AV Cable (VFA0039)



..... S-Video Cable (VJA0658)



..... Shoulder Strap (VFC3299)



..... Remote Controller (EUR646570)



..... Batteries for Remote Controller (AAA, UM-4 or R03)



..... Button-Type Battery (CR2025)

● For purchasing additional Battery Packs, see the list of optional accessories on p. 84.

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Basic Operations

Advanced Operations

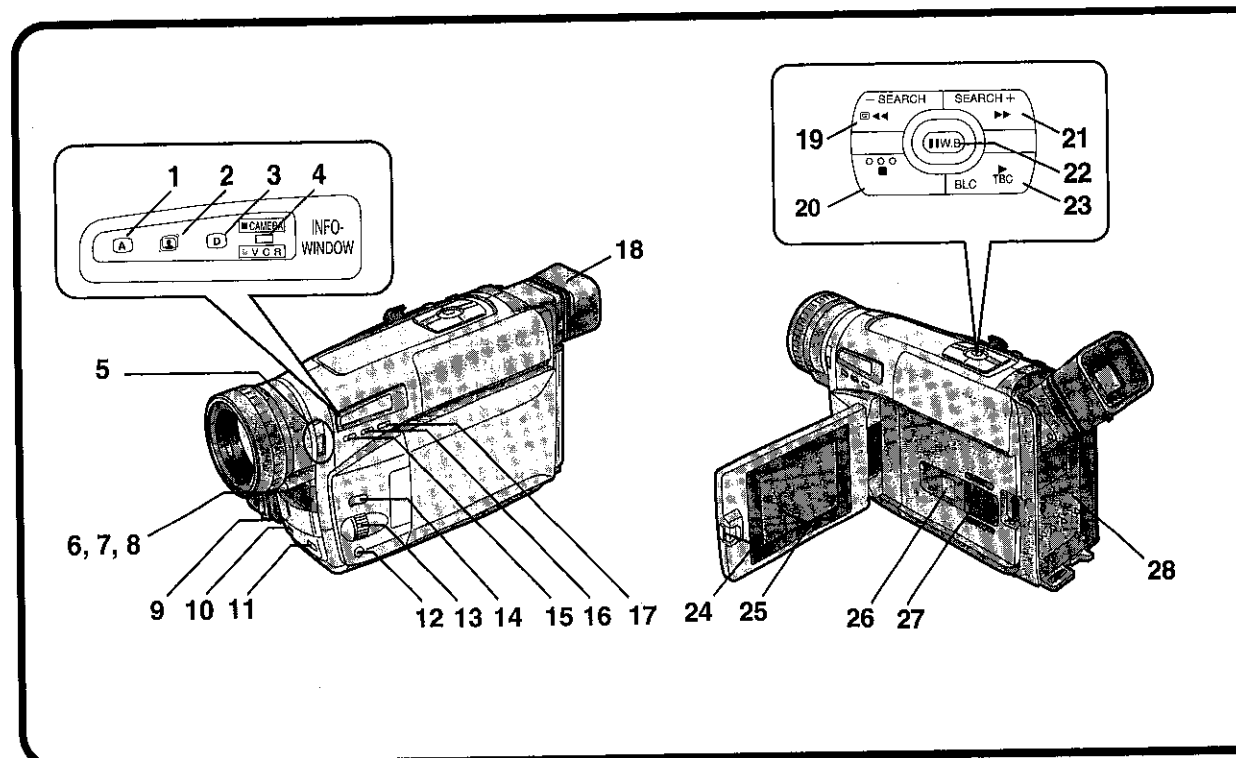
Options/Editing

Miscellaneous/
Care of Unit

Index

Controls and Functions

For more details, see the pages indicated in brackets.



1 Auto Mode Indication Lamp [A] (p. 22)

2 Super Image Stabilizer Indication Lamp [S] (p. 44, 46)

3 Digital Effect Indication Lamp [D] (p. 44, 46, 48, 50, 52, 54, 56)

4 Camera Mode Lamp [CAMERA] (p. 22)
VCR Mode Lamp [VCR] (p. 30)
Camera Mode: The lamp lights red.
VCR Mode: The lamp lights green.

5 0-Lux Recording Switch [0 LUX OFF/ON] (p. 66)

6 White Balance Sensor (p. 62)

7 Remote Control Sensor (p. 76)

8 Built-in Infra-red Beam Emitters (p. 66)

9 Microphone

10 Tally Lamp (p. 22)

11 Fade Button [FADE] (p. 36, 56)

12 Focus Button [FOCUS] (p. 26)
Item Set Button [SET] (p. 12)
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13 Multi-Function Dial [▲▼/MF/TRACKING] (p. 12, 26, 32)

14 Menu Button [MENU] (p. 12)

15 Auto Exposure Selector Button [PROG. AE] (p. 26, 42, 62)

16 Digital Image Store Button [STORE] (p. 38)

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17 Colour Selector Button for Digital Image [COLOUR] (p. 38)

18 Eyecup

19 Reverse Search Button [—SEARCH] (p. 24)
Rewind/Review/High-Speed Rewind Button [◀◀] (p. 30, 32)
Recording Check Button [Ⓢ] (p. 24)

20 Stop Button [■] (p. 30)

21 Forward Search Button [SEARCH+] (p. 24)
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22 White Balance Button [W.B] (p. 62)
Pause Button [||] (p. 32)

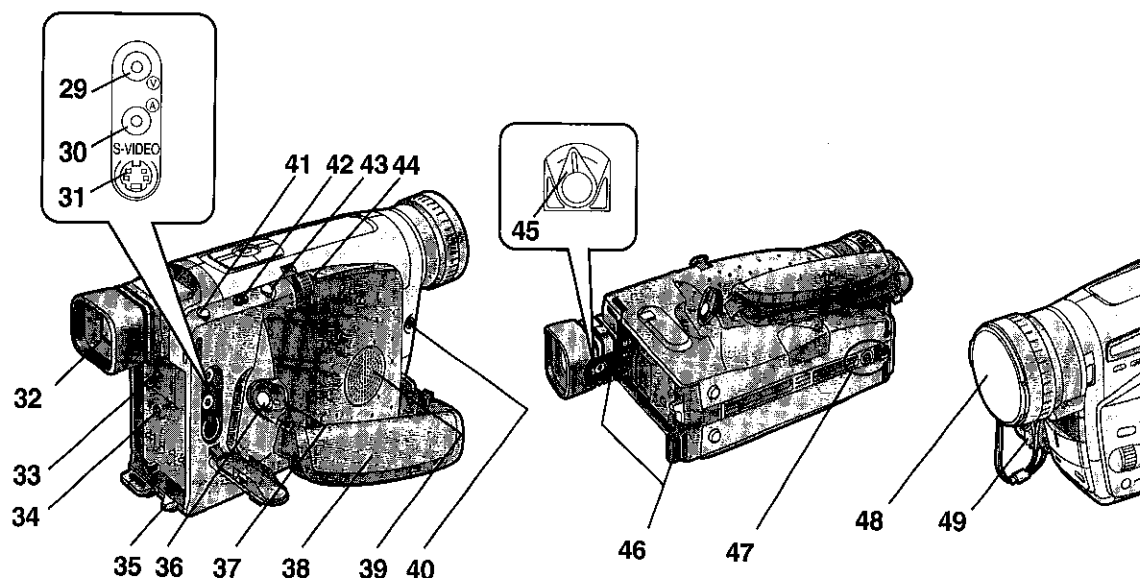
23 Playback Button [▶] (p. 30)
Backlight Button [BLC] (p. 24)
TBC Button [TBC] (p. 69)

24 LCD Monitor Open Lever [▲OPEN] (p. 18, 20)

25 LCD Monitor (p. 17, 20, 88, 92)

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD Monitor screen. However, this is not a malfunction and does not affect the recorded picture.

26 Cassette Compartment Window (p. 18)



27 Cassette Compartment Lock Button [LOCK]
(p. 18)

28 Battery Holder (p. 8)

29 Video Output Socket [V] (p. 34, 78, 80)

30 Audio Output Socket [A] (p. 34, 78, 80)

31 S-Video Output Socket [S-VIDEO]
(p. 34, 78, 80)

32 Viewfinder (p. 17, 20, 88, 92)

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen, the whole screen may have a slight colour cast, and flickering may occur. However, this is not a malfunction and does not affect the recorded picture.

33 Cover of the Button-type Battery's Compartment [BACKUP BATTERY] (p. 11)

34 DC Input Socket [DC IN] (p. 6)

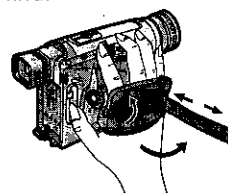
35 Battery Eject Lever [BATTERY EJECT]
(p. 9)

36 Recording Start/Stop Button (p. 22)

37 Off/On Mode Selector Switch
[CAMERA/OFF/VCR] (p. 12, 22, 30, 34)

38 Grip Belt

You can adjust the Grip Belt to the size of your hand.



Open the Grip Belt Cover and adjust the length of the Grip Belt.

39 Speaker

40 Digital Still Picture Terminal
[DIGITAL STILL PICTURE] (p. 80)

41 Cassette Eject Button [EJECT] (p. 18, 34)

42 Date/Time/Title Button [DATE/TITLE]
(p. 29, 68)

43 Recording Start/Stop Button [REC] (p. 25)
Snapshot Recording Button [SNAP] (p. 52)
Multi Image/Picture-in-Picture Button [MULTI]
(p. 48, 50, 52, 72)

44 Zoom Lever [W/T] (p. 28, 46)
Volume Adjustment Lever [-VOL+] (p. 31)

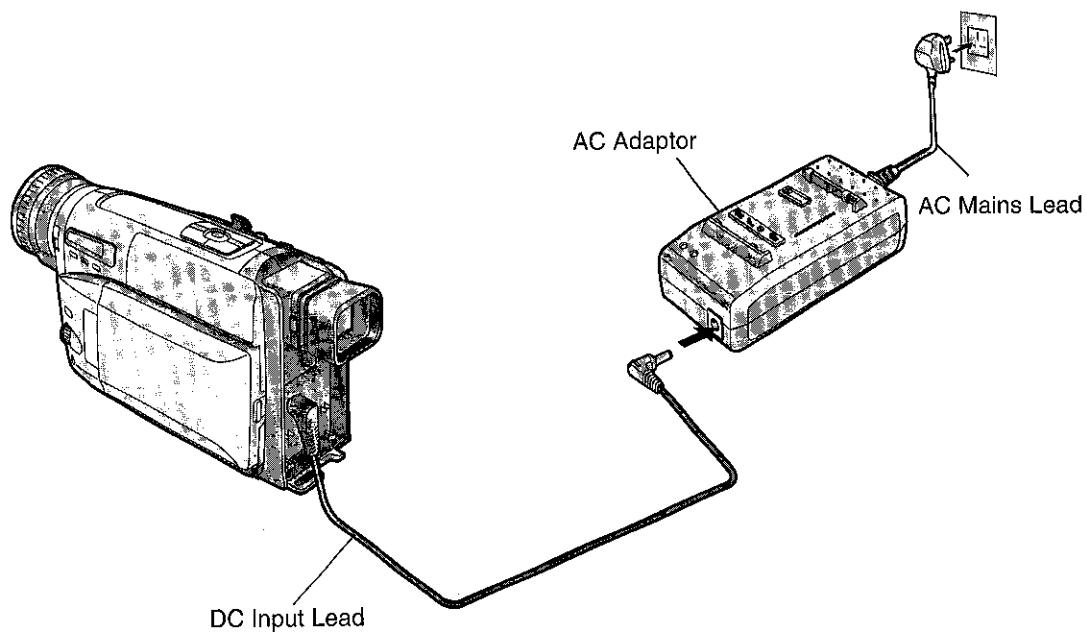
45 Eyepiece Corrector Lever (p. 20)

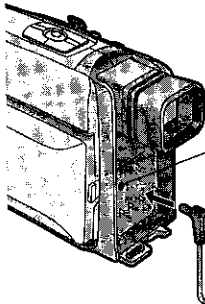
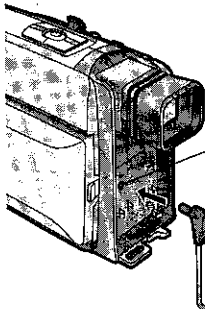
46 Shoulder Strap Holders (p. 88)

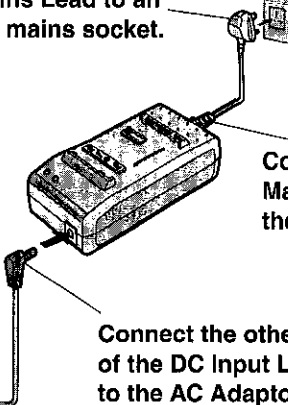
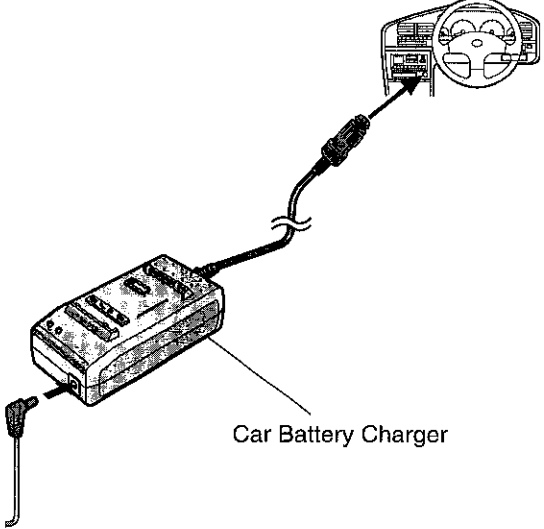
47 Tripod Receptacle
Attach a tripod (optional) to this receptacle.

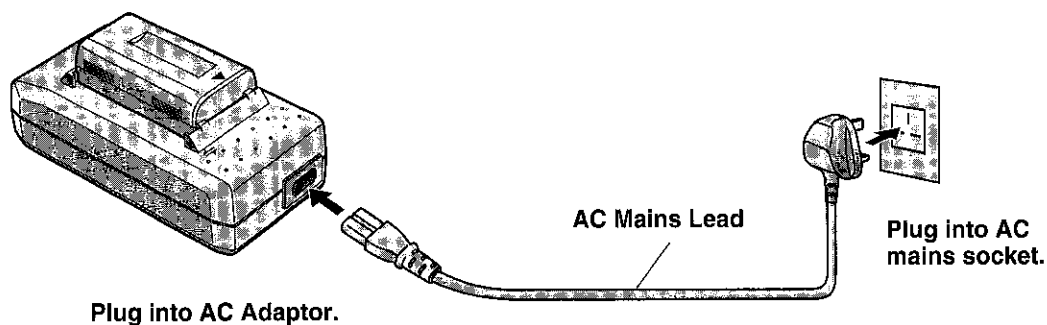
48 Lens Cap (p. 21, 35, 62)

49 Lens Cap Holder (p. 21)



Title	Procedure
<p>The 3 Types of Power Supply</p> <ol style="list-style-type: none"> 1) AC Adaptor (supplied) to supply power from an AC mains socket. 2) Car Battery Charger (optional) to supply power from the cigarette lighter socket in a vehicle. 3) Battery (supplied) (p. 8) <p>1) Supplying Power from an AC Mains Socket</p>	 <p>Connect the DC Input Lead to the [DC IN] Socket on the Movie Camera.</p>
<p>2) Supplying Power from the Cigarette Lighter Socket in a Car</p> <p>The use of the Car Battery Charger (VW-KBC7E; optional) makes it possible to supply power to the Movie Camera in a car for recording and playback.</p>	<p>Start the engine and then plug the Car Battery Charger into the Cigarette Lighter Socket.</p>  <p>Connect the DC Input Lead to the [DC IN] Socket on the Movie Camera.</p>

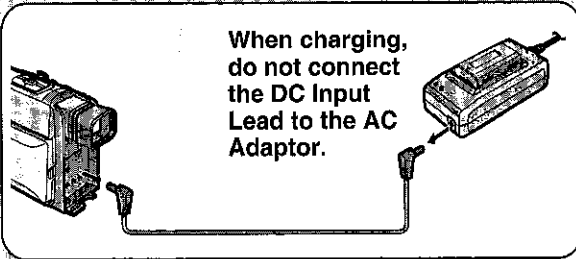
	<i>Remarks, etc.</i>
<p>Connect the AC Mains Lead to an AC mains socket.</p>  <p>Connect the AC Mains Lead to the AC Adaptor.</p> <p>Connect the other end of the DC Input Lead to the AC Adaptor.</p>	<ul style="list-style-type: none"> • Always set the [CAMERA/OFF/VCR] Switch to [OFF] before disconnecting the AC Mains Lead. • If you use the Movie Camera for a long time, it becomes warm. However, this is normal. • Do not use the AC Adaptor for any purposes other than supplying the unit with power or charging the Battery. • When not using the AC Adaptor, unplug its AC Mains Lead from the AC mains socket. To unplug, pull it by the plug, not by the lead. • This AC Adaptor works on any mains supply voltage between 100 and 240 V, and any frequency between 50 and 60 Hz. For use in other countries, an adaptor plug may be necessary.
 <p>Car Battery Charger</p>	<ul style="list-style-type: none"> • After use, be sure to disconnect the Car Battery Charger from the cigarette lighter socket. • The Car Battery Charger can be used with 12 V and 24 V DC negative-grounded vehicles. • Do not start the car engine while the Movie Camera is being powered by the car battery. • If the voltage drops suddenly e.g. because the car air-conditioner is turned on, the Movie Camera is automatically turned off to protect it. Wait about 10 seconds before turning it on again. • If the Car Battery Charger is already connected to the cigarette lighter socket when you start the engine, the fuse in the Car Battery Charger's plug may blow out. • Also read the operating instructions of the Car Battery Charger.



The 3 Types of Power Supply (cont.)

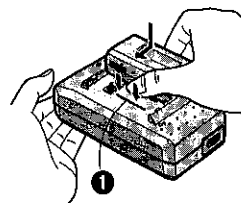
3) Supplying Power with the Battery

Before use, charge the Battery.

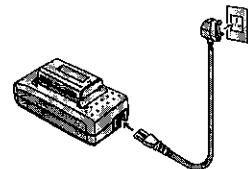


Procedure

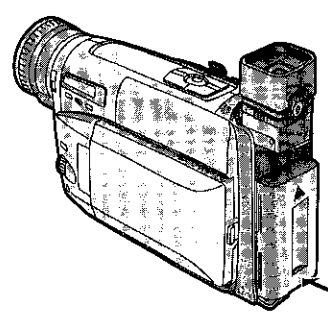
1
To attach the Battery, align it with line ①, push it down and slide it in the direction of the arrow.



2
Connect the AC Mains Lead to the AC Adaptor and an AC mains socket.
• The [POWER] Lamp lights and then the [CHARGE] Lamp flashes and charging starts.



5
Press the bottom of the Battery toward the Movie Camera until it locks with a click.



Charging Time and Maximum Time for Continuous Recording

Battery No.	Charging Time for a Full Charge	Max. Continuous Recording Time	Max. Continuous Recording Time for Approx. 30-Minute Charging
CGR-V610 (supplied)	1 h 20 min.	2 h (1 h 20 min.)	50 min. (35 min.)
CGR-V620	2 h 25 min.	4 h 10 min. (2 h 45 min.)	50 min. (35 min.)
CGR-V816	5 h 10 min.	8 h 20 min. (5 h 30 min.)	50 min. (35 min.)

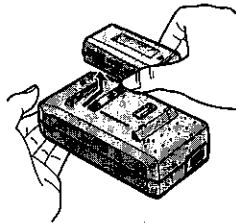
(The times shown in the above chart are approximations. The figures in parentheses show the recording time when using the LCD Monitor.)

The times listed above for your information indicate the duration of recording performed at an ambient temperature of 25°C and 60% relative humidity. The charging time may be longer when you charge the Battery at higher or lower temperature.

- During recording or charging, the Battery becomes warm. However, this is normal.
- If you do not use the Battery for a long time, please read "Precautions for Storage" (p. 87).
- The remaining battery operation time can be confirmed both in the Viewfinder or on the LCD Monitor.
- For details about the Remaining Battery Power Indication, read "Checking the Remaining Battery Power". (p. 10)

3

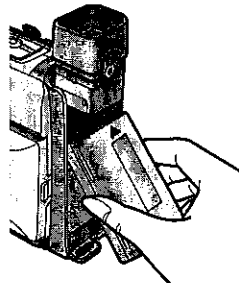
Remove the Battery by sliding it in the opposite direction of Step 1.



- Also disconnect the AC Mains Lead.

4

If necessary, adjust the angle of the Viewfinder by tilting it upward and then insert the Battery with its top into the top Battery Holder.



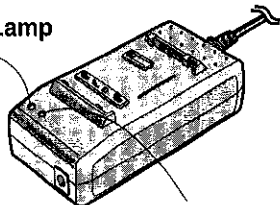
[CHARGE] Lamp

Flashing: During charging.
Lit

(continuously): The Battery can already be used to operate the Movie Camera but it is not yet fully charged.
(Approximately 30-minute battery charge)

Off: The Battery is fully charged.

[POWER] Lamp



[CHARGE] Lamp

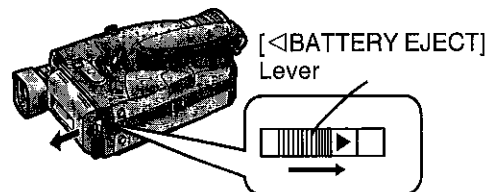
Remarks, etc.

- Be sure to insert the mains plug completely into the correct socket.
- If the [CHARGE] Lamp does not flash even though the Battery is attached, remove the Battery and then re-attach it.
- If you have any problems with charging the Battery, refer to page 96.
- Charge the Battery at a room temperature between 10°C and 30°C.
- If you charge the Battery when it is not yet discharged, the [CHARGE] Lamp may flash briefly and then go out. This indicates that the Battery is fully charged. Therefore, this is not an indication of a malfunction.

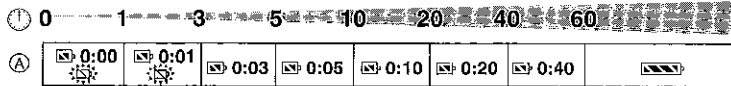
Removing the Battery from the Movie Camera

Hold the Battery firmly to prevent it from dropping and pull it off while sliding the [BATTERY EJECT] Lever in the direction of the arrow.

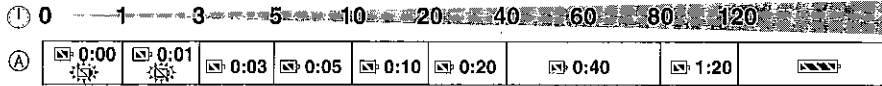
- Be careful not to drop the Battery by accident.
- Before removing the Battery, set the [CAMERA/OFF/VCR] Switch to [OFF].
- Never remove the Battery during recording or playback, because the tape would remain in contact with the video heads and this can cause damage to the heads and tape.



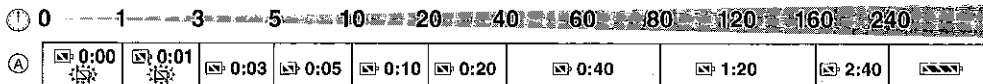
CGR-V610



CGR-V620



CGR-V816



■ Checking the Remaining Battery Power

You can confirm the remaining charge in the attached Battery in the Viewfinder or on the LCD Monitor. This also shows you approximately how much more continuous recording time you can get from the attached Battery. The indicated time does not change in 1-minute steps.

The above illustrations show how the Remaining Battery Operation Time Indication changes according to the remaining operation time.

⌚: **Actual Remaining Battery Operation Time**

Ⓐ: **Remaining Battery Operation Time Indication (This indication does not appear when recording in the Mirror Mode.)** (p. 27)

Remaining Battery Power & Operation Time Indication

This Indication shows the remaining duration of continuous recording at an ambient temperature of 25°C when a fully charged Battery was attached. Therefore, in the following cases, the actual available recording time is different from the times shown above:

When Recording Is Not Performed Continuously

In most cases, you will frequently start and stop recording, turn the Movie Camera on and off, and use the zoom and other functions, all of which consume power. Therefore, the actual available recording time from the Battery is approximately 30-50% shorter than listed. (p. 9)

When the Ambient Temperature Is Extremely Low or Extremely High

The characteristics of the Battery vary according to the ambient temperature, and at a very low temperature, the possible recording time becomes extremely short.

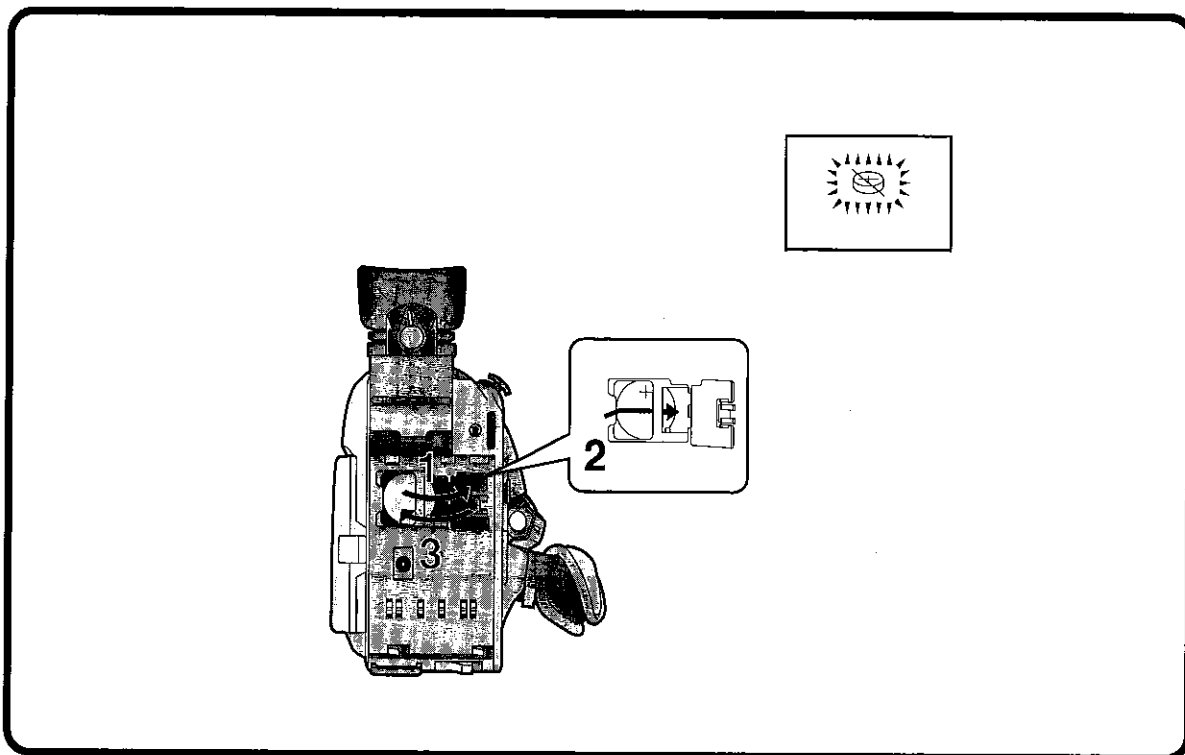
In addition, the Remaining Battery Operation Time Indication on the Movie Camera decreases a little faster than at an ambient temperature of 25°C. (At a higher temperature, it tends to decrease more slowly.)

When the Service Life of the Battery Has Reached Its End

When the operation time even after full charging is too short for normal use, the service life of the Battery has reached its end. (p. 96)

Inserting the Button-type Battery

Before setting the date and time, insert the button-type battery (supplied).



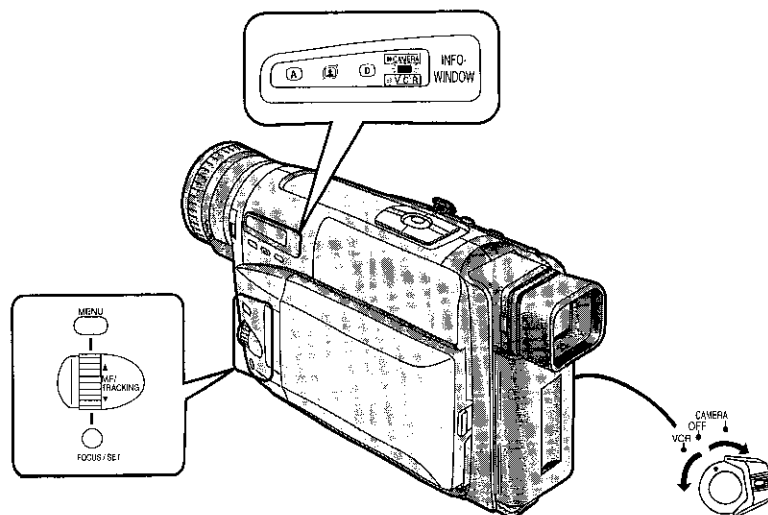
- 1 Open the [BACKUP BATTERY] Cover.
- 2 Insert the button-type battery so that its (+) side is visible.
- 3 Close the [BACKUP BATTERY] Cover.

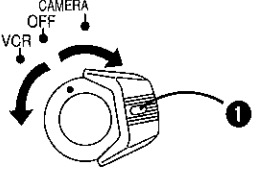
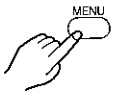
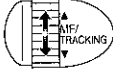

- Before inserting or removing the button-type battery, be sure to set the [CAMERA/OFF/VCR] Switch to [OFF].
- When the button-type battery is exhausted, the [⊙] Indication flashes. In this case, replace it with a new CR2025 battery. (The life of the battery is about 3 years.)
- To make it easier to remove the button-type battery, use a pointed object.
- When you remove the button-type battery, be careful not to drop it.
- Keep the button-type battery out of the reach of children.
- Make sure you insert the battery with its poles correctly aligned.
- The internal clock works even when the Movie Camera is turned off, and it consumes power from the button-type battery.

Information for your safety

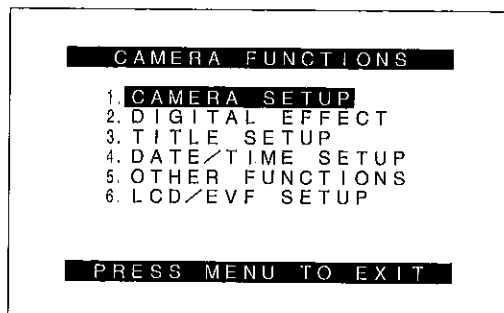
WARNING

"THE LITHIUM BATTERY IS A CRITICAL COMPONENT (TYPE NUMBER CR2025 MANUFACTURED BY PANASONIC). IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE. REPLACEMENT BATTERIES MUST BE OF THE SAME TYPE AND MANUFACTURER. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED. DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION."

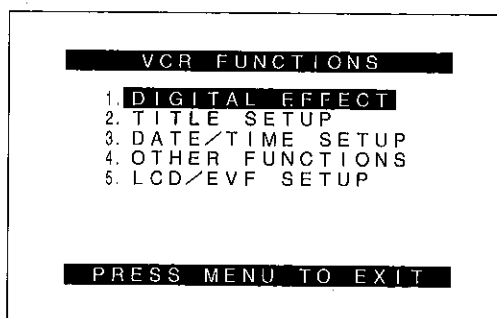


Title	Procedure	Procedure
<p>Using the Menu Screen</p> <p>This Movie Camera displays the settings of various functions in Menus to make it easy to select the desired functions and settings.</p>	<p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch to [CAMERA] or [VCR]. Turn the switch while pressing the button ①.</p> 	<p>2</p> <p>Press the [MENU] Button.</p> <p>When you press this button while the [CAMERA] Lamp is lit in red, the Camera Mode Menu ① appears. When you press this button while the [VCR] Lamp is lit in green, the VCR Mode Menu ② appears.</p> 
	<p>5</p> <p>Turn the [▲▼] Dial to select the item to be set.</p> 	<p>6</p> <p>Press the [SET] Button to set the selected item to the desired mode. Every press moves the cursor [▶] to the next mode.</p> 

① Camera Mode Main-Menu



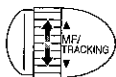
② VCR Mode Main-Menu



3

Turn the [▲▼] Dial to select the desired sub-menu.

Turning the [▲▼] Dial changes the highlighted item.



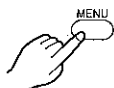
4

Press the [SET] Button to display the selected sub-menu.



■ Exiting the Menu

Press the [MENU] Button again.



Remarks, etc.

Note About the Settings Made on the Menu

The settings you selected on the Menu are maintained when you turn the Movie Camera off. However, if you disconnect the power supply unit (Battery or AC Adaptor) from the Movie Camera before turning it off, the selected settings may not be maintained.

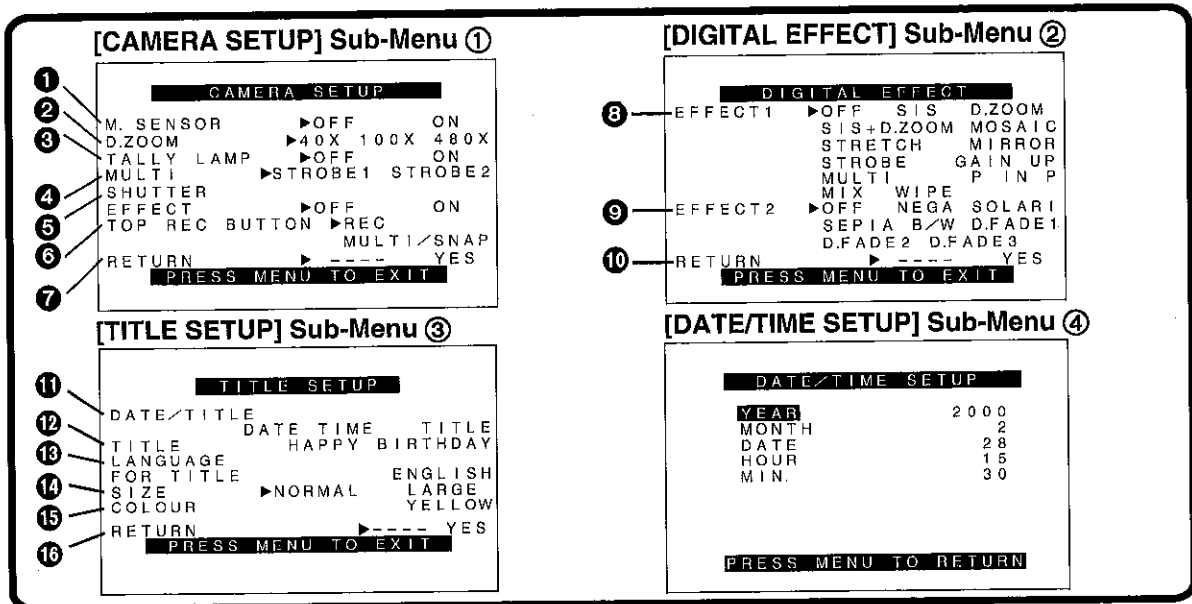
- When you turn the Movie Camera off, the digital effect(s) that you selected on the [DIGITAL EFFECT] Sub-Menu of the [VCR FUNCTIONS] Main-Menu are automatically set to [OFF].

- You can display the menu during playback, but not during recording. Also, it is possible to start playback while the menu is displayed, but if you start recording, the displayed menu disappears. (When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), it is not possible to display the menu during playback.)

- The method for making settings on the [DATE/TIME SETUP] Sub-Menu (p. 16) and [LCD/EVF SETUP] Sub-Menu (p. 17) differs slightly from that of other Sub-Menus.

Menu Functions

Camera Functions Menu



The illustrations of the menus are intended for explaining the functions; the actual menus look somewhat different.

Camera Mode Main-Menu [CAMERA FUNCTIONS]

1. CAMERA SETUP
2. DIGITAL EFFECT
3. TITLE SETUP
4. DATE/TIME SETUP
5. OTHER FUNCTIONS
6. LCD/EVF SETUP

[CAMERA SETUP] Sub-Menu ①

- ① Motion-Sensor-Controlled Recording [M.SENSOR] (p. 64, 66)
- ② Digital Zoom [D.ZOOM] (p. 46)
- ③ Recording Lamp [TALLY LAMP] (p. 22)
- ④ Multi Image Modes [MULTI] (p. 48, 50)
- ⑤ Shutter Effect [SHUTTER EFFECT] (p. 53)
- ⑥ Top Side Recording Button [TOP REC BUTTON] (p. 25, 48, 50, 52)
- ⑦ Returning to the Main-Menu [RETURN]
If you set [RETURN] to [YES], the Menu changes back to the Main-Menu.

[DIGITAL EFFECT] Sub-Menu ②

- ⑧ Digital Effects 1 [EFFECT1] (p. 44)
- ⑨ Digital Effects 2 [EFFECT2] (p. 45)
- ⑩ Returning to the Main-Menu [RETURN]

[TITLE SETUP] Sub-Menu ③

- ⑪ Date/Time/Title Indication [DATE/TITLE] (p. 29)
- ⑫ Title [TITLE] (p. 58)
- ⑬ Language of the Title [LANGUAGE FOR TITLE] (p. 58)

- ⑭ Size of the Title [SIZE] (p. 60)

- ⑮ Colour of the Date/Time/Title Indication [COLOUR] (p. 60)

- ⑯ Returning to the Main-Menu [RETURN]

[DATE/TIME SETUP] Sub-Menu ④ (p. 16)

[OTHER FUNCTIONS] Sub-Menu ⑤

⑪ Recording Speed Mode [REC SPEED]

- [SP] means Standard Play. Recording is possible for the time indicated on the cassette.
- [LP] means Long Play. Recording is possible for approximately double the time indicated on the cassette. However, the quality of the pictures recorded in the LP Mode is slightly inferior compared to those recorded in the SP Mode.
- If you set [S-VHS ET] on the [OTHER FUNCTIONS] Sub-Menu to [ON], [REC SPEED] is automatically set to [SP]. Even if you later set [S-VHS ET] to [OFF], [REC SPEED] remains set to [SP]. Therefore, to use the LP Mode when recording in the VHS format, set [REC SPEED] to [LP].

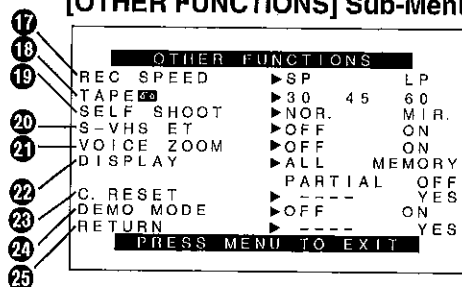
⑫ Tape Length [TAPE LENGTH] (p. 19)

⑬ Self-Recording [SELF SHOOT] (p. 27)

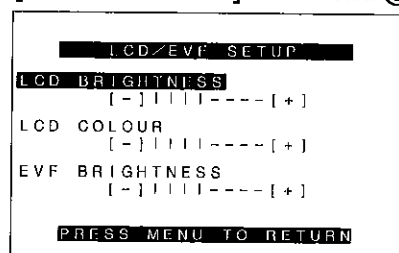
⑭ S-VHS ET Mode [S-VHS ET] (p. 22)

- When an S-VHS cassette is inserted in the Movie Camera, [S-VHS] is indicated instead of [S-VHS ET] and you can set it to [ON] or [OFF] to select or cancel the S-VHS recording format.
- If you insert an S-VHS-C cassette with a broken out erasure prevention tab, [S-VHS ET] is indicated instead of [S-VHS], however, this is not a malfunction. If you want to perform recording, use a cassette with an intact tab. (p. 19)
- If you set [REC SPEED] on the [OTHER FUNCTIONS] Sub-Menu to [LP], [S-VHS ET] is automatically set to [OFF].

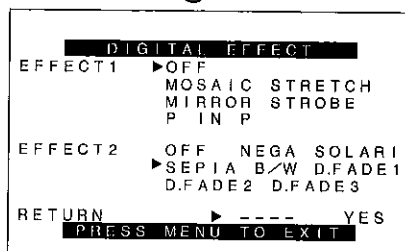
[OTHER FUNCTIONS] Sub-Menu ⑤



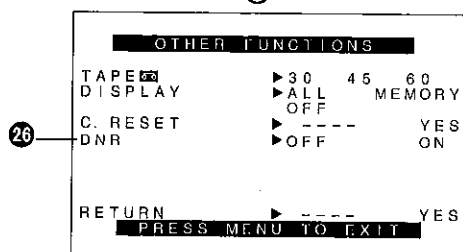
[LCD/EVF SETUP] Sub-Menu ⑥



[DIGITAL EFFECT] Sub-Menu in VCR Mode ⑦



[OTHER FUNCTIONS] Sub-Menu in VCR Mode ⑧



②1 Voice Zoom [VOICE ZOOM] (p. 29)

②2 Counter Display Mode [DISPLAY] (p. 93)

②3 Counter Reset [C.RESET] (p. 91)

②4 Demonstration Mode [DEMO MODE] (p. 91)

②5 Returning to the Main-Menu [RETURN]

[LCD/EVF SETUP] Sub-Menu ⑥ (p. 17)

VCR Mode Main-Menu [VCR FUNCTIONS]

1. DIGITAL EFFECT
2. TITLE SETUP
3. DATE/TIME SETUP
4. OTHER FUNCTIONS
5. LCD/EVF SETUP

[DIGITAL EFFECT] Sub-Menu ⑦ (p. 70)

All items on the [DIGITAL EFFECT] Sub-Menu are the same as those on the [DIGITAL EFFECT] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu.

[TITLE SETUP] Sub-Menu (p. 68)

All items on the [TITLE SETUP] Sub-Menu are the same as those on the [TITLE SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu.

[DATE/TIME SETUP] Sub-Menu (p. 16)

[OTHER FUNCTIONS] Sub-Menu ⑧

②6 Digital Noise Reduction [DNR]

- To reduce noise in the picture during playback, set [DNR] on the [OTHER FUNCTIONS] Sub-Menu to [ON].
- This function can only be used when the TBC Function is activated (the [TBC] Indication is displayed). (p. 69)
- When the Picture-in-Picture Function (p. 72) is used with the Movie Camera in the VCR Mode, the Digital Noise Reduction Function does not work.
- If the playback picture or the subject's movements look unnatural, set [DNR] to [OFF].
- When you want to copy or edit scenes from this Movie Camera onto a VCR, set [DNR] to [OFF].

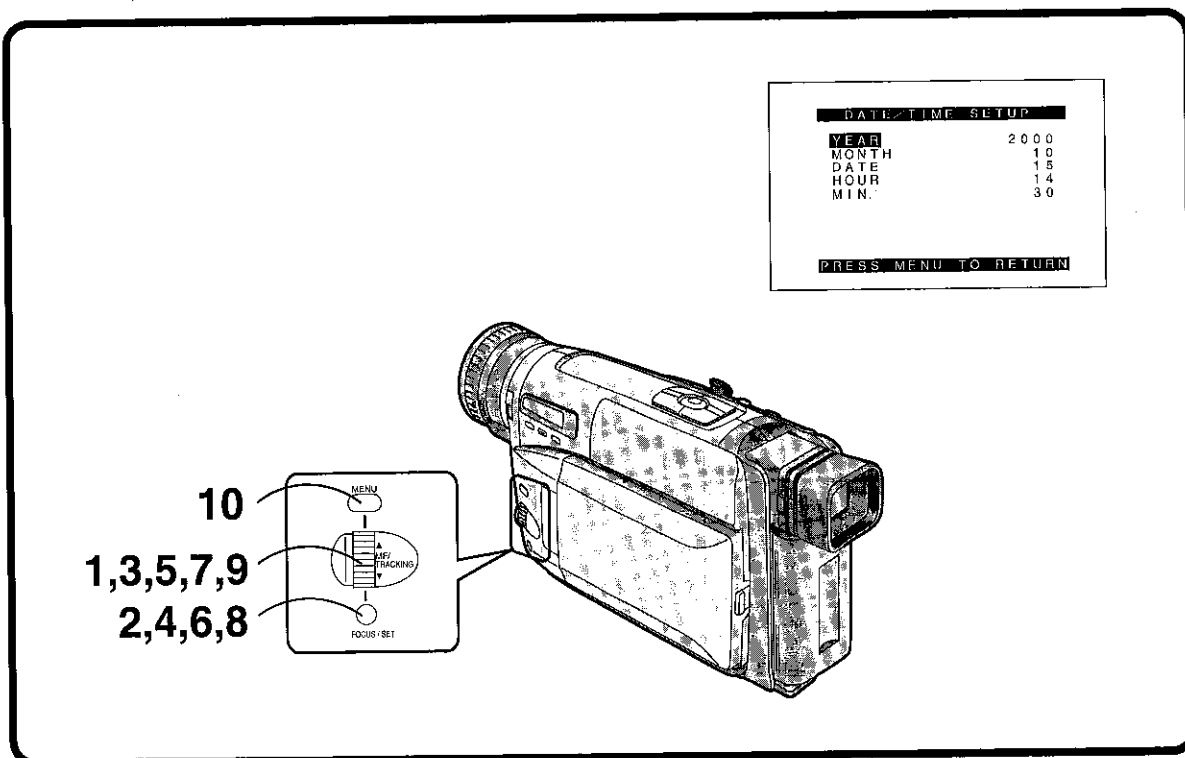
All other items on the [OTHER FUNCTIONS] Sub-Menu are the same as those on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu.

[LCD/EVF SETUP] Sub-Menu (p. 17)

All items on the [LCD/EVF SETUP] Sub-Menu are the same as those on the [LCD/EVF SETUP] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu.

Setting the Date and Time

If you select the [DATE/TIME SETUP] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu, the menu shown below appears.



The initial setting of date and time is 0:00, 1st January, 2000.

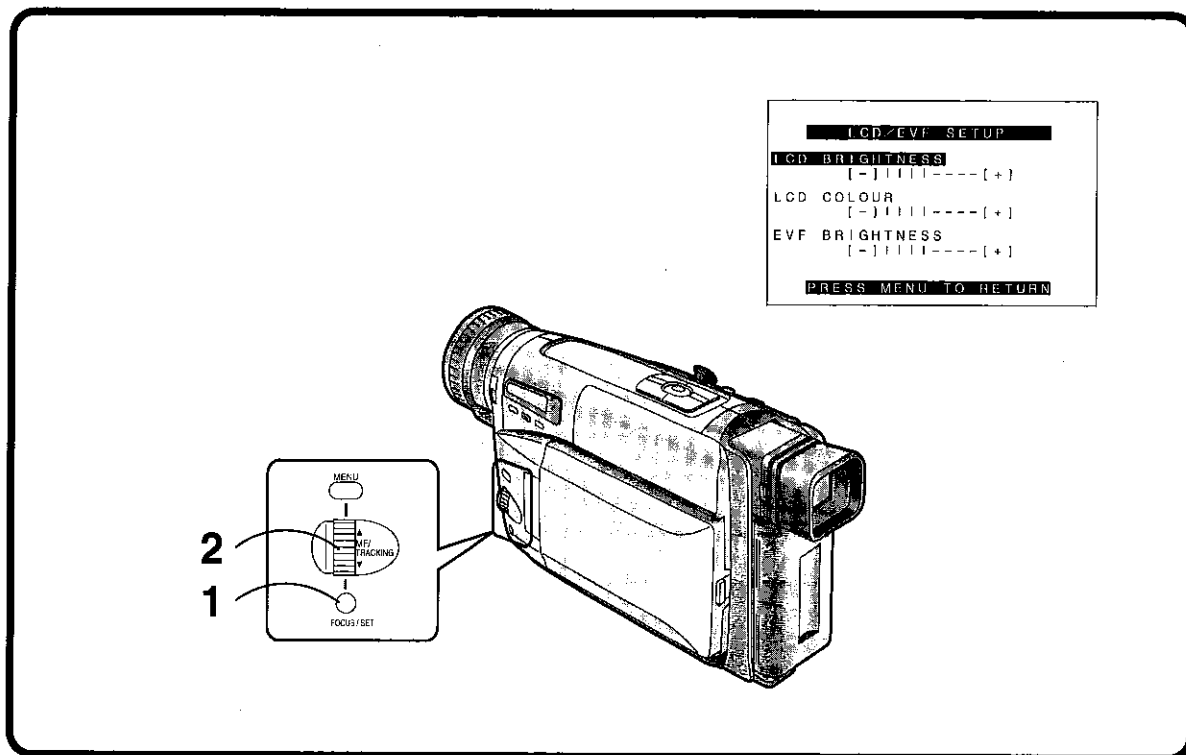
For example: To set the clock to 15th October 2000, 14:30.

- 1 Turn the [▲▼] Dial to set to [2000].
•The years change in the following order:
...1990...1991...2000...2089...1990...
- 2 Press the [SET] Button to select [MONTH].
- 3 Turn the [▲▼] Dial to set to [10].
- 4 Press the [SET] Button to select [DATE].
- 5 Turn the [▲▼] Dial to set to [15].
- 6 Press the [SET] Button to select [HOUR].
- 7 Turn the [▲▼] Dial to set to [14].
- 8 Press the [SET] Button to select [MIN.].
- 9 Turn the [▲▼] Dial to set to [30].
- 10 Press the [MENU] Button to finish the date and time setting.
The operation of the clock starts from [00] seconds.
Pressing the button one more time makes the menu disappear.

- If you select the [DATE/TIME SETUP] Sub-Menu when the button-type battery is not inserted into the Movie Camera or is exhausted, the Main-Menu disappears and the [🔋] Indication flashes instead. Insert a new button-type battery (p.11) and then set the date and time again.
- As the Movie Camera's built-in clock is subject to slight imprecision, be sure to check the indicated time before recording.
- The clock employs the 24-hour system.

Adjusting the LCD Monitor/Viewfinder

If you select the [LCD/EVF SETUP] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu, the following items are displayed.



LCD Brightness [LCD BRIGHTNESS]

To adjust the brightness of the LCD screen. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the brighter is the screen.

LCD Colour Level [LCD COLOUR]

To adjust the colour saturation of the LCD screen. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the stronger are the colours.

Viewfinder Brightness [EVF BRIGHTNESS]

To adjust the brightness of the Viewfinder. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the brighter is the screen.

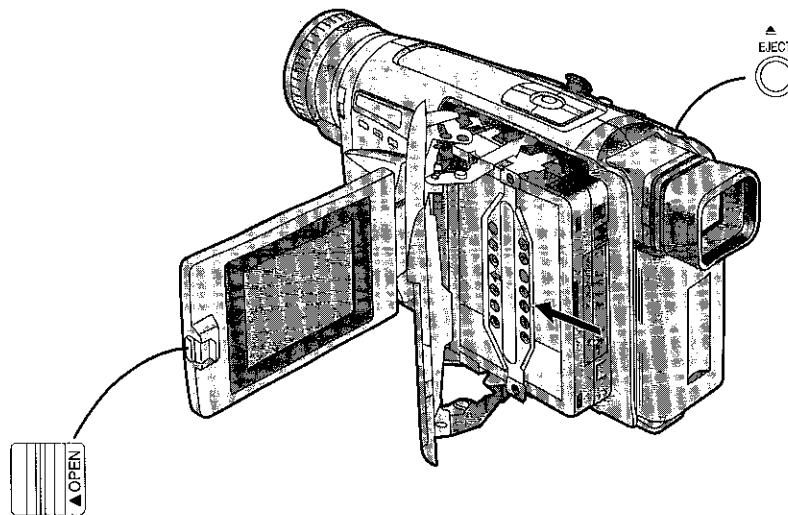
1 Press the [SET] Button to select the item that you want to adjust.

2 Turn the [▲▼] Dial to increase or decrease the vertical bars of the Bar Indication. The Bar Indication is divided into 8 steps. The more vertical bars are shown, the stronger is the brightness or colour saturation.

Ejecting the Menu

Press the [MENU] Button twice.

- These adjustments have no influence on the actual picture recorded.

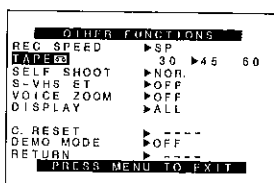


Title	Procedure	
<p>Inserting a Cassette</p> <p>If the AC Adaptor or Battery is used to supply power, it is possible to insert or eject the cassette without turning on the Movie Camera.</p> <p>Before inserting the cassette, make sure that the tape is tight. If it is loose, turn the cog wheel in the direction of the arrow to tighten it.</p> <div data-bbox="263 1008 837 1243"> </div>	<p>1</p> <p>Slide the [▲ OPEN] Lever to open the LCD Monitor (approx. 90°).</p> <div data-bbox="885 1052 1149 1232"> </div>	<p>2</p> <p>Push the [▲ EJECT] Button.</p> <div data-bbox="1220 929 1428 1276"> </div>
	<p>Ejecting the Cassette</p> <p>Push the [▲ EJECT] Button and pull out the cassette.</p> <p>Close the Cassette Compartment by pressing the [LOCK] Button.</p> <div data-bbox="1029 1556 1324 1792"> </div>	

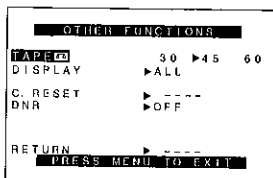
● Selecting the Correct Tape Length

To ensure that the Remaining Tape Time Indication displayed during recording and playback is correct, you need to set the tape length that matches that of the inserted cassette.

Camera Mode

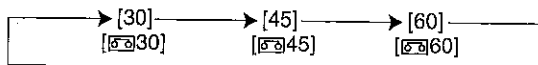


VCR Mode



- 1 Press the [MENU] Button.
•The Main-Menu appears.
- 2 Turn the [▲▼] Dial to select [OTHER FUNCTIONS] and then press the [SET] Button.
- 3 Turn the [▲▼] Dial to select [TAPE].
- 4 Press the [SET] Button to select the correct tape length.

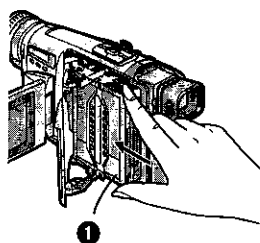
- The selected tape length is marked with the [▶] Mark.
- The Tape Length Indications change in the following order:



- 5 Press the [MENU] Button to exit the Menu.

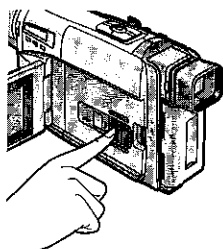
3

Insert the cassette with its window in position ①.



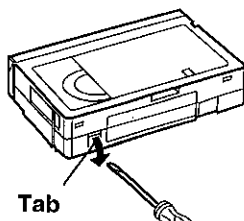
4

Close the Cassette Compartment by pressing the [LOCK] Button.

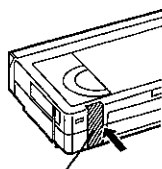


Preventing Accidental Erasure of Recordings

Break off the tab with a screwdriver in the direction of the arrow prevents recording. To record again, cover the hole firmly with two layers of adhesive tape.



Tab



Adhesive Tape

Remarks, etc.

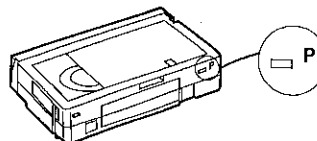
- It is not possible to take out the cassette during recording.
- Do not insert and take out the cassette repeatedly. This could cause the tape to become loose or damaged.
- If a cassette with broken out erasure prevention tab is inserted, the "E" Indication flashes.

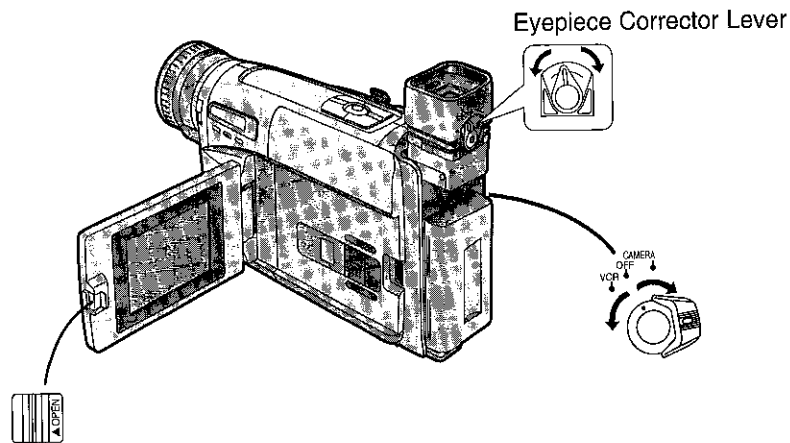
Confirming the Remaining Tape Time

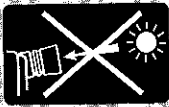
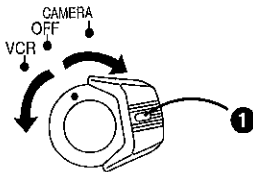
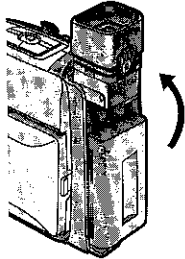
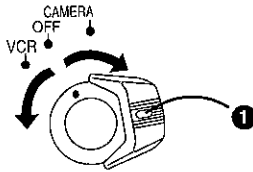
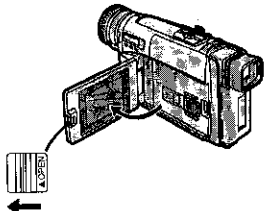
During recording and playback, the Remaining Tape Time Indication ② is automatically displayed, so you always know how much time you have left on the cassette.



- If you start recording or playback, the [R] Indication flashes for a few seconds, while the Movie Camera calculates the remaining tape time.
- When the remaining tape time is less than 2 minutes, the [R] Indication and the Remaining Tape Time Indication start to flash.
- This function is only meant as a guide. The Remaining Tape Time Indication is subject to imprecision due to either user error (such as incorrectly selected tape length) or stretching of the tape.
- When you use a cassette bearing the [P] mark or other special types of cassettes, the Remaining Tape Time Indication may not be very precise.





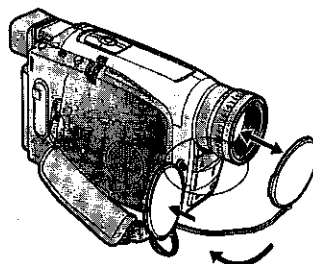
Title	Procedure	
<p>Using the Viewfinder</p> <p>Before using the Viewfinder, adjust it to your eyesight so that the indications in the Viewfinder are clear and easy to read.</p> <p>Before adjusting the Viewfinder, make sure that the LCD Monitor is completely closed.</p> <p>Never aim the Movie Camera with its Viewfinder or Lens directly at the sun; this could damage internal parts of the unit.</p> 	<p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch to [CAMERA] or [VCR]. Turn the switch while pressing the button ❶.</p> 	<p>2</p> <p>If necessary, adjust the angle of the Viewfinder by tilting it upward. The Viewfinder can be tilted upward up to approximately 90°.</p> 
<p>Using the LCD Monitor</p> <p>It is also possible to record while viewing the picture on the opened LCD Monitor.</p> <p>Relationship between Viewfinder and LCD Monitor</p> <p>Opening the LCD Monitor turns off the Viewfinder. Closing the LCD Monitor turns the Viewfinder on again. However, turning the LCD Monitor forward also turns on the Viewfinder again. (p. 26)</p> <ul style="list-style-type: none"> Due to limitations in production technology, there may be some tiny bright or dark spots on the LCD; however, these are not recorded on the tape. 	<p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch to [CAMERA] or [VCR]. Turn the switch while pressing the button ❶.</p> 	<p>2</p> <p>Push the [▲ OPEN] Lever and turn out the LCD Monitor approximately 90° in the direction of the arrow. The Viewfinder turns off.</p> 

Handling the Lens Cap

Before you start recording, remove the Lens Cap.

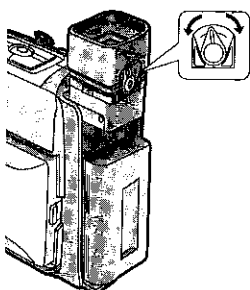
You can attach the removed Lens Cap onto the Grip Belt.

When not actually recording, always attach the Lens Cap to the Lens to protect it.



3

Adjust by turning the Eyepiece Corrector Lever.



12:30:45
15.10.1999



12:30:45
15.10.1999

Remarks, etc.

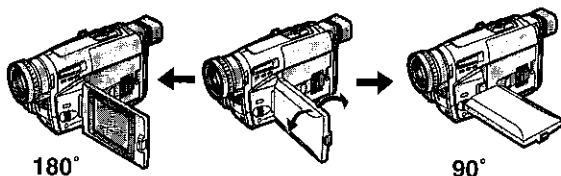
- Do not hold the Movie Camera by the Viewfinder or apply any pressure on it.
- If sunlight or other strong light enters the Viewfinder, sparkling noise will occur on the Viewfinder screen. If you block off the light, this phenomenon disappears after a few minutes and does not affect the recorded picture.
- If a subject with strong contrast or a menu is displayed in the Viewfinder, a ghost image may remain temporarily. However, this is not a malfunction and does not affect the recorded picture.



3

Adjust the angle of the LCD Monitor according to the desired recording angle.

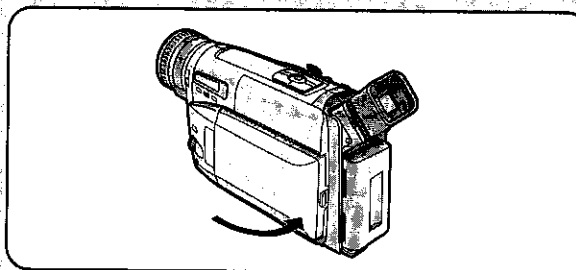
The LCD Monitor rotates upward a maximum of 180° and downward a maximum of 90° from its normal vertical position. Trying to forcefully rotate it beyond this range could seriously damage the Movie Camera.

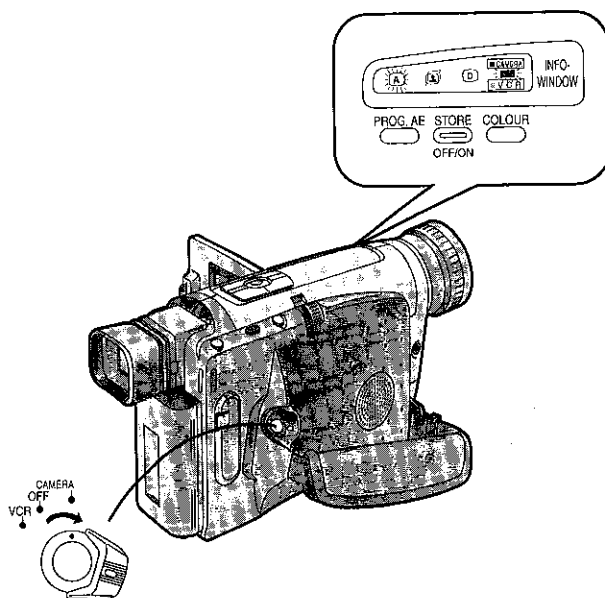


- The picture seen on the LCD Monitor looks slightly stretched vertically, however, the actually recorded picture remains unaffected by this.

Closing the LCD Monitor

Push the LCD Monitor close until the [▲OPEN] Lever locks with a click.

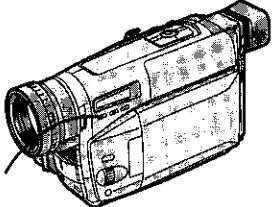
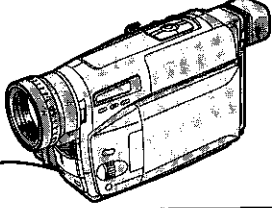
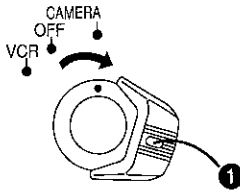
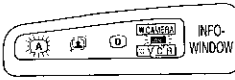
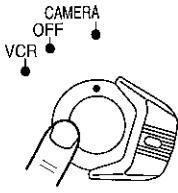






● About the VHS Formats

With this Movie Camera, you can choose one of the following 3 different formats for recording:

1. **VHS** : also called "normal" or "conventional VHS" format
 2. **S-VHS** (Super-VHS) : developed based on the VHS format but featuring higher resolution and picture quality (The [S] Indication appears.)
 3. **S-VHS ET** (Super-VHS Expansion Technology): This function allows recording and playback in S-VHS quality picture on a normal VHS-C cassette (The [S-VHS ET] Indication appears.) (Recording in this format is only possible in the SP Mode.)
- When you insert a VHS-C cassette:
If you set [S-VHS ET] on the [OTHER FUNCTIONS] Sub-Menu to [ON], recording is performed in the S-VHS ET format, and if you set [S-VHS ET] to [OFF], recording is performed in the VHS format. (p. 12)

Title	Procedure
<p>Recording (Filming)</p> <p>When the [AUTO] Indication appears, you can simply turn on the Movie Camera and press the Recording Start/Stop Button to start recording, and the focus and white balance are adjusted automatically.</p> <ul style="list-style-type: none"> ● If the [AUTO] Indication does not appear on the LCD Monitor, press the [PROG. AE] Button repeatedly until the [AUTO] Indication appears and the [A] Lamp lights. ● Depending on the light source and recording situation, correct automatic focusing and white balance adjustment may not be possible. In such cases, adjust them manually. Focus: p. 26 White Balance: p. 62 <div data-bbox="256 1205 842 1424">  <p>[PROG. AE] Button</p> </div> <p>Recording Indicating (Tally) Lamp</p> <p>The Recording Lamp lights during recording to let the people in front of the Movie Camera know that recording is being performed. If you set [TALLY LAMP] on the [CAMERA SETUP] Sub-Menu to [OFF], the Recording Lamp will not light up during a recording.</p> <div data-bbox="256 1626 842 1845">  <p>Recording Indicating (Tally) Lamp</p> </div>	<div data-bbox="879 757 1145 987"> <p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the button ①. The [CAMERA] Lamp lights in red.</p>   </div> <div data-bbox="1177 757 1458 1010"> <p>2</p> <p>Press the Recording Start/Stop Button. Recording starts. The [RECORD] Indication appears briefly and then changes to [REC].</p>  <div data-bbox="1238 1413 1394 1536">  </div> <div data-bbox="1238 1603 1394 1727">  </div> </div>

- When you insert an S-VHS-C cassette:
If you set [S-VHS] on the [OTHER FUNCTIONS] Sub-Menu to [ON], recording is performed in the S-VHS format, and if you set [S-VHS] to [OFF], recording is performed in the VHS format. (p. 12)

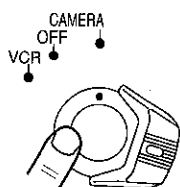
Cassette	Recording Format	Compatible Playback Equipment
VHS-C	VHS (SP/LP)	VHS, S-VHS, S-VHS ET, SQPB
	S-VHS ET (SP)	S-VHS, S-VHS ET, SQPB
S-VHS-C	VHS (SP/LP)	VHS, S-VHS, S-VHS ET, SQPB
	S-VHS (SP/LP)	S-VHS, S-VHS ET, SQPB

- A cassette that was recorded in the S-VHS or S-VHS ET format can also be played back on other S-VHS, S-VHS ET, or SQPB (S-VHS Quasi Playback) video equipment. (However, with some equipment, playback may not be possible. In that case, connect this Movie Camera directly to the TV. (p. 34))

- If you want to record and play back with highest possible picture quality or store the cassettes for a long time, we recommend that you use S-VHS-C cassettes and record in the S-VHS format.
- If you record in the S-VHS ET format, the picture quality may not be very good with certain types of cassettes. To avoid negative surprises, we recommend that you make a trial recording and confirm that the quality of the recorded picture is satisfactory. (To ensure optimum picture quality, we recommend the use of HG (high-grade) type cassettes.)

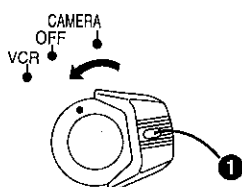
3

To pause recording:
Press the Recording Start/Stop Button again.
The [PAUSE] Indication appears.



4

To finish recording:
Set the [CAMERA/OFF/VCR] Switch to [OFF] while pressing the button ①.



Remarks, etc.

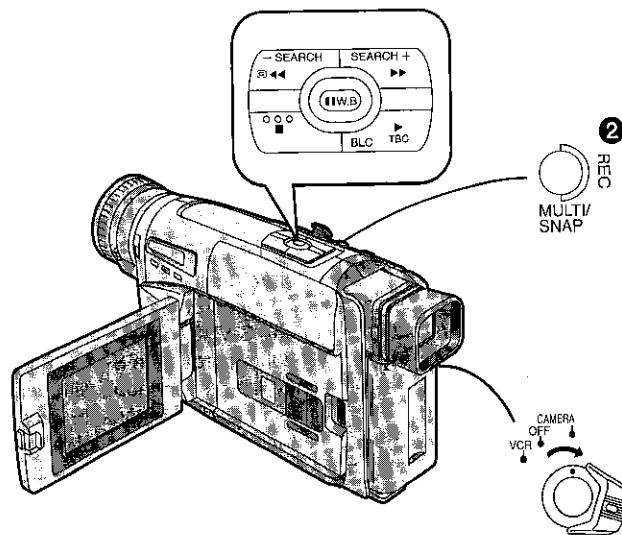
- If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. To resume recording from this condition, set the [CAMERA/OFF/VCR] Switch to [OFF] and then to [CAMERA] again.
- During recording, the Programme AE Function is locked. Therefore, even if you accidentally press the [PROG. AE] Button during Recording, the Programme AE Mode does not change.
- Due to limitations in production technology, there may be some tiny bright or dark spots on the LCD. However, these are not recorded on the tape.
- When recording in a dimly lit location, we recommend that you use the IR/Video DC Light (optional), etc. to brighten up the scene.
- If you use an E55 type cassette for recording, the picture may contain some distortion when you play it back. However, this is not a malfunction of the Movie Camera.

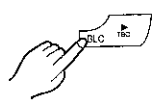


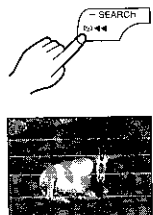
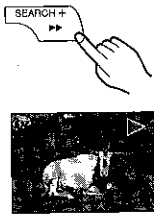
Index Signals (VISS)



Many VHS VCRs feature the Index Search and Intro Scan Functions that make it easy to locate the beginning of scenes marked with index signals. This Movie Camera automatically records an index signal in the following cases:

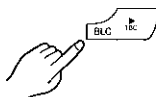

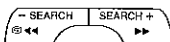


- Start recording after connecting the AC Adaptor or attaching the Battery.
 - Start recording after inserting a cassette.
 - Start recording after changing from the VCR Mode to the Camera Mode.
- The "INDEX" indication flashes briefly while the Movie Camera records an index signal.

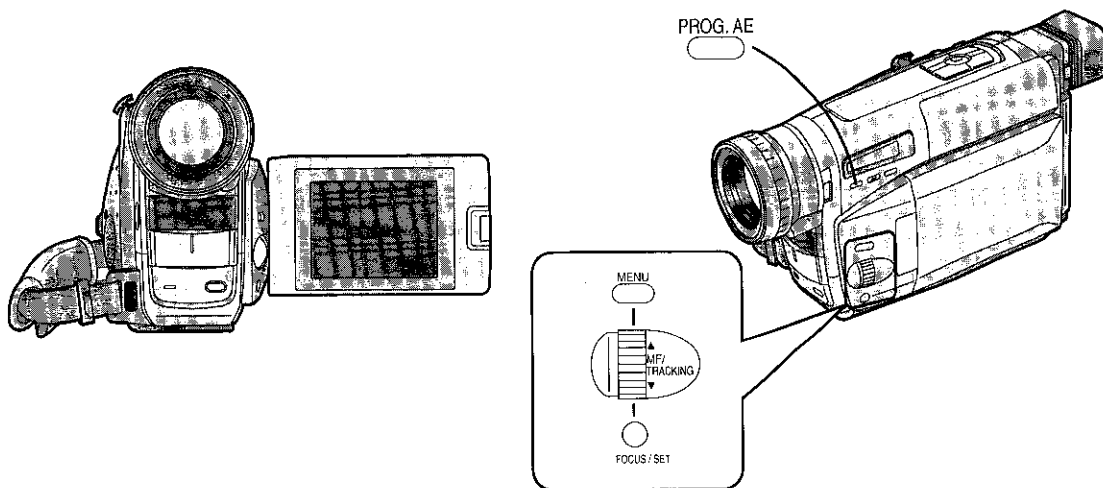


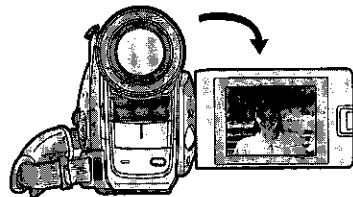
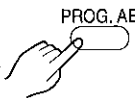
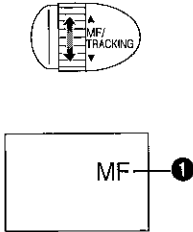
Title	Procedure
<p>Recording Backlit Scenes (Backlight Compensation)</p> <p>To prevent the backlit subject from being recorded very dark. (Backlight means that the light falls on the subject from behind, i.e. the subject is between the light source and the Movie Camera.)</p>	<p>1 Keep the Backlight Button [BLC] pressed.</p> <p>The backlight is being compensated as long as you keep the Button pressed, and the subject is recorded more brightly. (The picture brightens up as a whole.)</p> 
<p>Checking If the Picture Is Recorded (Recording Check)</p> <p>By automatically playing back the final 2 seconds (approximate) of the last recorded scene, this function lets you check if a just finished scene has been recorded correctly. When you then start recording the next scene, it is automatically joined with a smooth transition free from picture distortion. For especially important scenes, use this function from time to time for confirmation.</p>	<p>1 Press the Recording Check Button [CHK] briefly in the Recording Pause Mode.</p> <p>The [CHK] Indication ① appears. After checking, the Movie Camera returns to the Recording Pause Mode and is ready for recording the next scene. ([CHK] means Check)</p>  
<p>Viewing Recorded Scenes During Recording Pause (Camera Search)</p> <p>You can view recorded scenes when the Movie Camera is in the Recording Pause Mode. The Camera Search Function is convenient to search for a scene from which you want to start recording a new scene with smooth scene-to-scene transition.</p>	<p>1 Keep the Reverse Search Button [-SEARCH] or the Forward Search Button [SEARCH+] pressed for more than 1 second.</p> <p>Pressing the [-SEARCH] Button plays back the picture in reverse direction. Pressing the [SEARCH+] Button plays back the picture in forward direction.</p>  

■ Using the [REC] Button as the Recording Start/Stop Button

For certain recording angles, it may be more convenient to use the [REC] Button ② as the Recording Start/Stop Button. To be able to use the [REC] Button as the Recording Start/Stop Button, set [TOP REC BUTTON] on the [CAMERA SETUP] Sub-Menu to [REC]. (p. 12)

		Remarks, etc.
<p>Returning to Normal Recording Release the Backlight Button [BLC].</p> 		<ul style="list-style-type: none"> •The sky may appear whitish. •When recording with the sun striking the subject at an angle, star-shaped light reflections may be recorded in the picture. •When recording a subject in front of a very bright background, the subject may still appear dark in the picture. •In some cases, the subject may look clear, but the background may be overexposed (almost completely white). However, this is normal and not a malfunction.
		<ul style="list-style-type: none"> •For Recording Check, the Movie Camera must be in the same mode (SP or LP) as used for recording; otherwise the playback picture is distorted.
<p>2 Starting to Record from the Desired Position: Release the pressed Search Button. The Movie Camera is in the Recording Pause Mode.</p>  	<p>3 Press the Recording Start/Stop Button to start recording. The Movie Camera starts recording a new scene with smooth scene-to-scene transition.</p>  	<ul style="list-style-type: none"> •If the Recording Speed Mode (SP/LP) of the previous and the new recording are different, the playback picture may be distorted.



Title	Procedure
<p>Recording Yourself (Recording with the LCD Monitor Facing Forward)</p> <p>This makes it possible to record yourself while viewing the picture on the LCD Monitor or to show the persons in front of the Movie Camera the picture being recorded.</p>	<p>1</p> <p>Open the LCD Monitor and turn it so that it faces forward (lens side).</p> 
<p>Focusing on the Subject Manually (Manual Focus)</p> <p>This makes it possible to adjust the focus manually for subjects and recording situations for which automatic focusing is not precise.</p>	<p>1</p> <p>Press the [PROG. AE] Button repeatedly until an indication other than [AUTO] Indication appears.</p>  <p>2</p> <p>Turn the [MF] Dial until the subject is in focus. The [MF] indication ❶ appears.</p> 

Mirror Mode for the Picture on the LCD Monitor

You are used to looking at yourself in the mirror. Therefore, when recording yourself with the LCD Monitor facing forward, the picture (as it is being recorded) might look unusual and distracting. If you prefer to see yourself on the LCD Monitor in the same way as you see yourself in a mirror, i.e. with the sides reversed, set [SELF SHOOT] on the [OTHER FUNCTIONS] Sub-Menu to [MIR.]. However, the picture will still be recorded in the normal, non-reversed way.

This mirror mode for the picture on the LCD Monitor works only during recording and in the Recording Pause Mode with the LCD Monitor facing forward.

- It is not possible to display and record the Date, Time and/or Title Indication in the Mirror Mode.
- In the Mirror Mode, only the following indications are displayed.

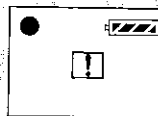
- : Recording
- ⏏: Recording Pause
- 🔋: Remaining Battery Power

Opening the LCD Monitor automatically turns off the Viewfinder. However, when you turn the LCD Monitor forward, the picture also appears in the Viewfinder.

This lets you aim the Movie Camera and view the picture in the Viewfinder, while the persons in front of the Movie camera can check the picture on the LCD Monitor during recording.

Remarks, etc.

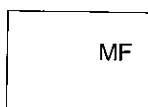
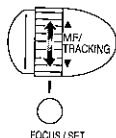
When the General Warning/Alarm Indication [!] appears, turn the LCD Monitor backward so that you can confirm the actual Warning/Alarm Indication.



- If you turn the LCD Monitor so that it faces forward, the Finder also automatically turns on. However, in the following cases, the Finder turns off:
 - Changing from the Camera to the VCR Mode.
 - Closing the LCD Monitor with the screen facing outward.

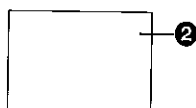
3

Alternatively, you can press the [FOCUS] Button to activate the Manual Focus Mode (the [MF] Indication appears). Then adjust the focus by turning the [MF] Dial, as in step 2.



Cancelling the Manual Focusing Mode

Press the [FOCUS] Button once to make the [MF] Indication disappear ②. Or, press the [PROG. AE] Button repeatedly until the [AUTO] Indication appears.

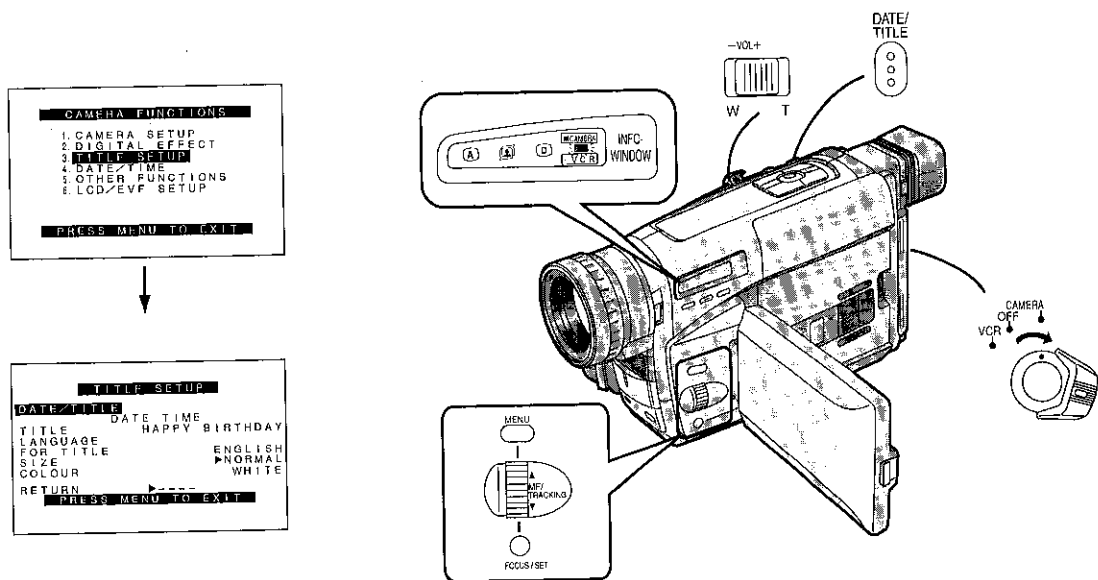


- It is not possible to adjust the focus when a menu is displayed.

Hint for Manual Focus Adjustment

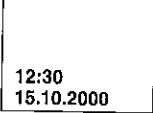
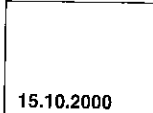
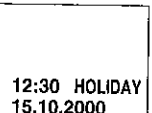
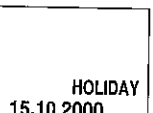
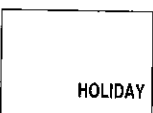
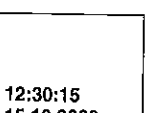
- If you adjust the focus in the wide-angle setting, the subject may go out of focus when you enlarge it. Therefore, enlarge the subject ③ before you adjust the focus, so that the picture remains focused when you zoom out ④.





Title	Procedure
<p>Enlarging Your Subject or Widening the Recording Angle (Zooming In/Out)</p> <p>Recording close-ups of your subjects and recording wide-angle shots add special effects to your videos.</p> <p>Zooming In [T] zooming magnification [W] Zooming Out</p>	<p>1</p> <p>To record a wider view (Zooming-out): Push the [W/T] Zoom Lever toward [W].</p> <p>To enlarge your subject (Zooming-in): Push the [W/T] Zoom Lever toward [T].</p> <ul style="list-style-type: none"> •The Zoom Magnification Indication appears for a few seconds.
<p>Recording with the Time and/or Date Superimposed in the Picture</p> <p>Confirm that [CAMERA] Lamp is lit.</p>	<p>1</p> <p>After displaying the [TITLE SETUP] Sub-Menu... (p. 12): Turn the [▲▼] Dial to select [DATE/TITLE].</p> <p>2</p> <p>Press the [SET] Button to select the desired indication.</p>

■ The Date/Time/Title Indication

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p>  <p>[DATE TIME]
Date and Time (h/m)</p> | <p>2</p>  <p>[DATE]
Date only</p> | <p>3</p>  <p>[DATE TIME TITLE]
Date, Time and Title</p> |
| <p>4</p>  <p>[DATE TITLE]
Date and Title</p> | <p>5</p>  <p>[TITLE]
Title only</p> | <p>6</p>  <p>[DATE TIME+SECONDS]
Date and Time (h/m/s)</p> |

- The indications change in the order **1** to **6**.

● Voice Zoom

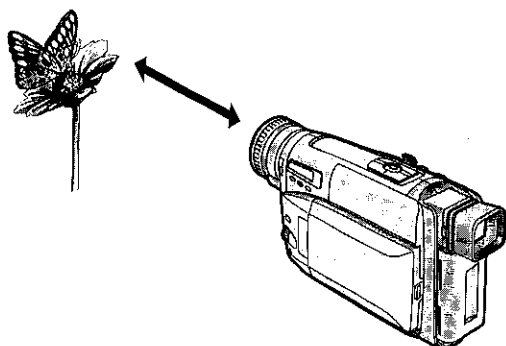
This function makes it possible to record the voices of distant persons slightly louder and more clearly, by emphasizing the frequency range of human voices according to the zoom position of the Movie Camera's lens. To activate the Voice Zoom Function, set [VOICE ZOOM] on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu to [ON]. (p. 12)

- The [V. ZOOM] Indication appears.
- The Voice Zoom function works within the zoom range up to 14X: above that point, its effect remains unchanged.
- Depending on the distance of the person(s) and the surrounding sounds, the Voice Zoom function may not have much effect.

Remarks, etc.

Recording Extra Close-up Shots of Small Subjects (Macro Close-up Function)

When the zoom magnification is 1X, the Movie Camera can focus on subjects down to a distance of approximately 5 mm between lens and subject. This allows recording very small subjects such as insects.

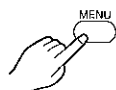


- The further you push the [W/T] Zoom Lever toward [W] or [T], the faster the zooming speed becomes.
- When you have zoomed to the tele setting, precise focusing is only possible on subjects no closer than 1.8 metres.
- The zoom range extends from the wide-angle setting of the lens (1X) to the tele setting (20X).
- This Function also can be operated with Remote Controller. (p. 76)

3

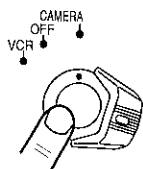
Press the [MENU] Button to exit the Menu Function.

The selected Date/Time/Title Indication appears.



4

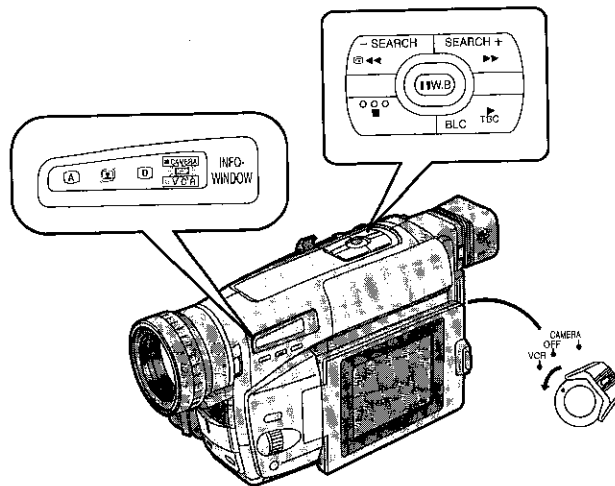
Press the Recording Start/Stop Button to start recording.

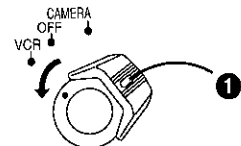
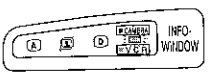

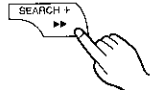


- If the button-type battery for the built-in clock is not inserted into the Movie Camera or is exhausted, only the title is displayed. (p. 11)
- When you turn the Movie Camera off and then on again, none of the above indications are displayed.
- The Date/Time/Title Indication remains displayed when you exit the [TITLE SETUP] Sub-Menu after having change the language of the title (p. 58), the type of Date/Time/Title Indication, the title itself (p. 58), the size of the title (p. 60) or the colour of the title (p. 60).

Deleting the Date/Time/Title Indication

During recording or when the Movie Camera is in the Recording Pause Mode, press the [DATE/TITLE] Button to make the Date/Time/Title Indication disappear.



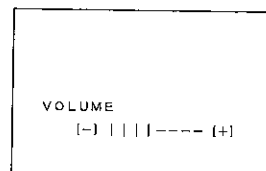
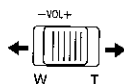
Title	Procedure	
<p>Viewing the Just Recorded Scenes on the Movie Camera (Playback)</p> <p>You can play back recorded scenes right after recording.</p>	<p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch to [VCR] while pressing the Button ①. The [VCR] Lamp lights.</p>  	<p>2</p> <p>Press the Rewind Button [◀◀] to rewind the tape.</p> <ul style="list-style-type: none"> • Rewind the tape to the point where the recording started. • If the tape reaches the beginning during rewinding, it automatically stops. 
	<p>Fast-Forwarding</p> <p>Press the [▶▶] Button in the Stop Mode.</p> <ul style="list-style-type: none"> • When the tape reaches the end, it automatically rewinds to the beginning. 	

● Adjusting the Sound Volume

Push the [—VOL+] Lever toward [+] to increase the volume or push it toward [—] to decrease the volume. The [VOLUME] Indication appears and the number of bars increases or decreases. When you release the Lever, this indication disappears.

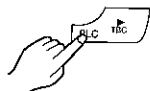
You can also adjust the volume with the Remote Controller. Increase the volume by pressing the [T] Button, or decrease it by pressing the [W] Button. This adjustment is only possible during playback.

- Do not cover the Speaker during playback.
- Because the speaker contains a magnet, do not bring a cassette near the speaker. It could adversely influence the recorded content.



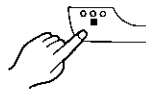
3

Press the Play Button [▶] to start playback.



4

To stop playback: Press the Stop Button [■].



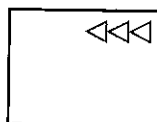
Remarks, etc.

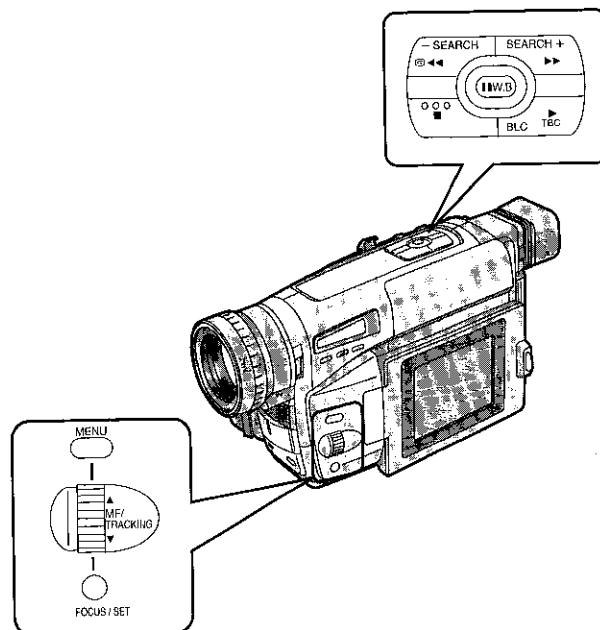
- During High-Speed Rewinding, the tape winding sound is louder.
- When rewinding the tape to the beginning, the Movie Camera automatically changes over from the High-Speed Rewinding Mode to the Rewinding Mode near the beginning of the tape, and it switches over to the Stop Mode at the beginning of the tape.
- If you press the [■] Button during High-Speed Rewinding, it takes several seconds before the tape is stopped, in order to protect the tape from damage.
- When using the Remote Controller, press the [◀◀] Button for more than 3 seconds.
- During High-Speed Rewinding, the Tape Counter shows [0:00.00].

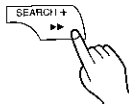
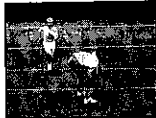


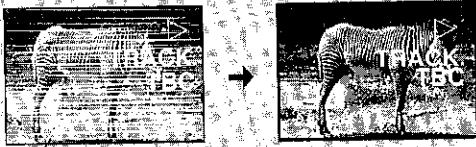

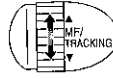
High-Speed Rewinding



Press the [◀◀] Button for more than 1 second in the Stop Mode. The [◀◀◀] Indication appears.

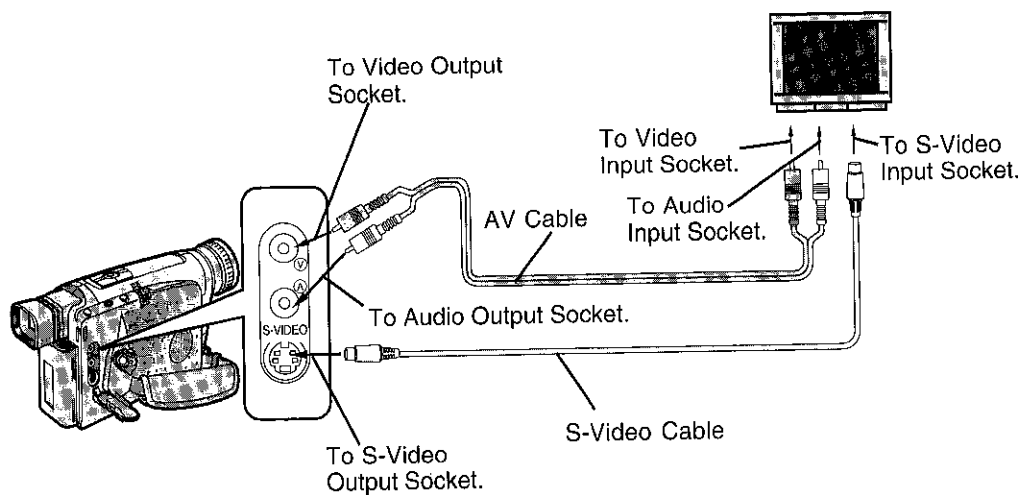
- If you operate this Movie Camera from a computer (p. 80), it is not possible to use this function.

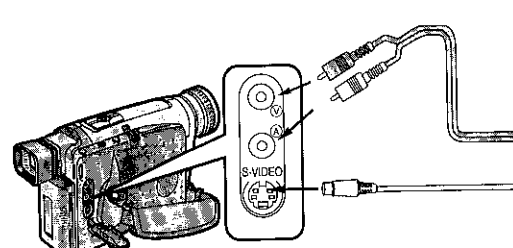
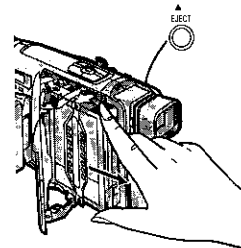
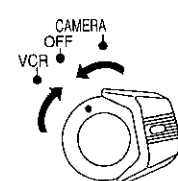


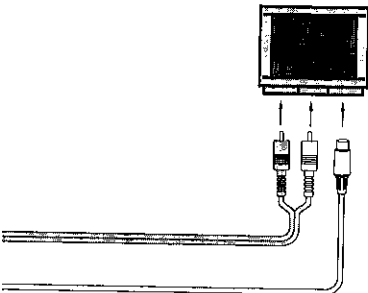
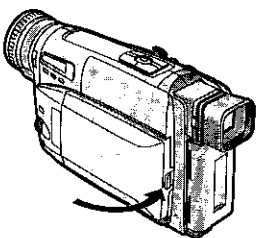
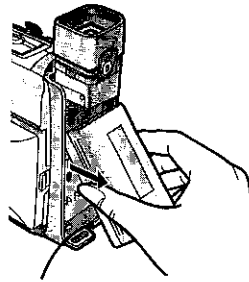
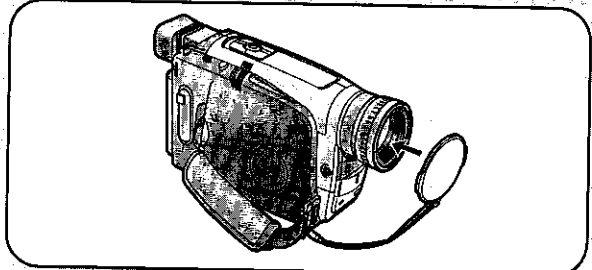


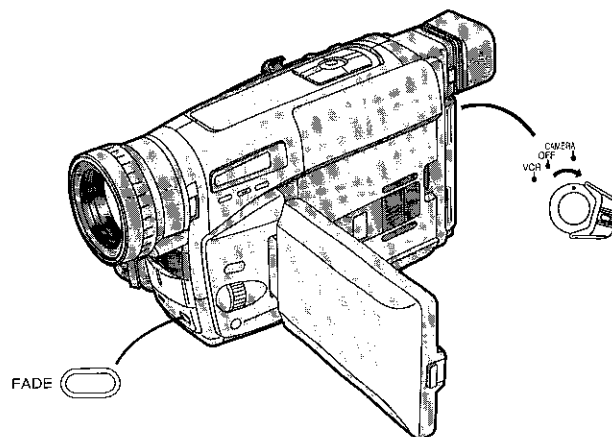
Title	Procedure	
<p>Using the Cue, Review and Still Playback Functions During Normal Playback</p> <p>Perform the following operations with the Movie Camera in the VCR mode (VCR) Lamp lights) and in the Normal Playback Mode.</p> <p>Due to special characteristics of the LCD monitor, the picture reproduced on the LCD Monitor contains less noise and is clearer than the picture in the Viewfinder. However, when playing back in these modes on a TV, the picture noise is the same as the Viewfinder.</p>	<p>Cue Playback Keep the Cue Button [▶▶] pressed during playback.</p> <ul style="list-style-type: none"> •To resume normal playback, release the [▶▶] Button.  	<p>Review Playback Keep the Review Button [◀◀] pressed during playback.</p> <ul style="list-style-type: none"> •To resume normal playback, release the [◀◀] Button.  
<p>Eliminating Picture Distortions (Manual Tracking Adjustment)</p> <p>This Movie Camera adjusts the tracking automatically. With certain cassettes, however, the tracking adjustment may not be precise; in this case, adjust the tracking manually.</p>  <p>White noise bars</p>	<p>1 Press the [FOCUS/SET] Button briefly during playback. The [TRACK.] Indication appears.</p> 	<p>2 Turn the [TRACKING] Dial to adjust the tracking.</p> 

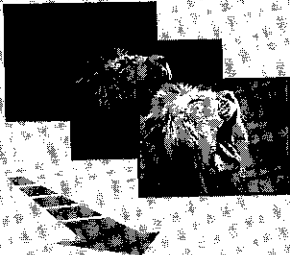
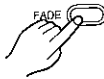
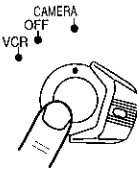
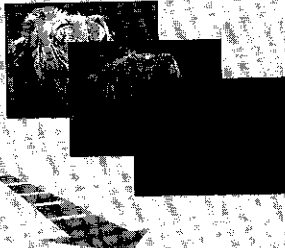
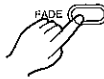
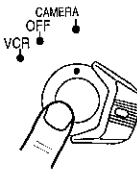
		Remarks, etc.
<p>Search Lock Function For longer Cue or Review Playback, press the Cue Button [▶▶] or the Review Button [◀◀] only briefly. As this locks the search function, you do not need to keep the button pressed for a long time.</p> <ul style="list-style-type: none"> • To resume normal playback, press the Play Button [▶]. 	<p>Still Playback Press the Still Button [■] pressed during playback. To return to Normal Playback, press the Still Button [■] again.</p> 	<ul style="list-style-type: none"> • If you leave the Movie Camera in the Still Playback Mode for about 6 minutes, it automatically switches over to the Stop Mode. And, if the Movie Camera is being powered by the Battery, it switches off completely after a further 6 minutes. • The sound is played back only during normal playback. • In the Cue, Review and Still Playback Modes, horizontal noise bars appear in the picture, or the picture may become black and white or distorted. • The horizontal noise bars have a different pattern in the SP mode and LP mode. • During Cue or Review Playback, no indications are displayed on the LCD Monitor.
<p>Returning to the Auto Tracking Mode Press [FOCUS/SET] Button for more than 2 seconds during playback.</p> 		<ul style="list-style-type: none"> • The Tracking Adjustment Function is automatically cancelled when the [TRACKING] Dial is not turned for 5 seconds. • It may not be possible to remove the noise bars completely. • It is not possible to adjust the tracking when a menu is displayed. • If you eject the cassette after adjusting the tracking, the adjusted setting is cancelled.

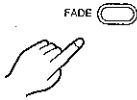
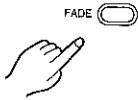


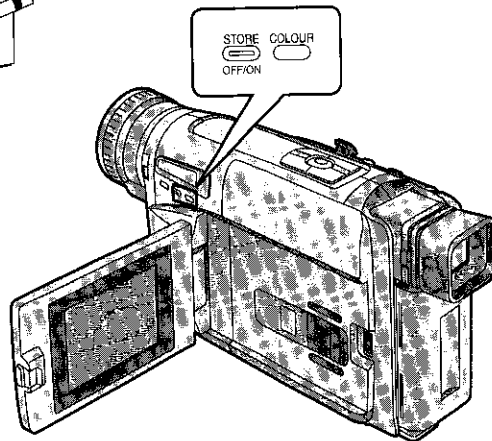
Title	Procedure	
<p>Playing Back on a TV</p> <p>By connecting the Movie Camera to a TV, you can watch playback of the recorded scenes on the TV screen.</p>	<p>1</p> <p>Connect the Audio Output Socket [A] and the Video Output Socket [V] on the Movie Camera with the Video and Audio Input Sockets on the TV. Use the AV Cable to connect to the TV. If your TV is equipped with an S-Video Socket, also connect the S-Video Cable.</p>	
<p>After Use</p>	<p>1</p> <p>Take out the cassette. (p. 18)</p> 	<p>2</p> <p>Set the [CAMERA/OFF/VCR] Switch to [OFF].</p> 



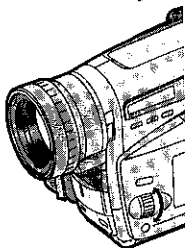




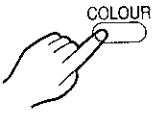
<p>On the TV, select the AV input channel which corresponds to the AV input sockets that you have connected the Movie Camera to.</p> 	<p>Remarks, etc.</p> <ul style="list-style-type: none"> • Before connecting, turn off both the Movie Camera and the TV. • If your TV is not equipped with AV Input Sockets, the 21-pin Adaptor (purchase separately) is necessary. Consult your dealer.
<p>3 Close the LCD Monitor.</p> 	<p>4 Remove the Battery (p. 9).</p>  <p>Attaching the Lens Cap After use, attach the supplied Lens Cap to the Lens to protect it.</p> 





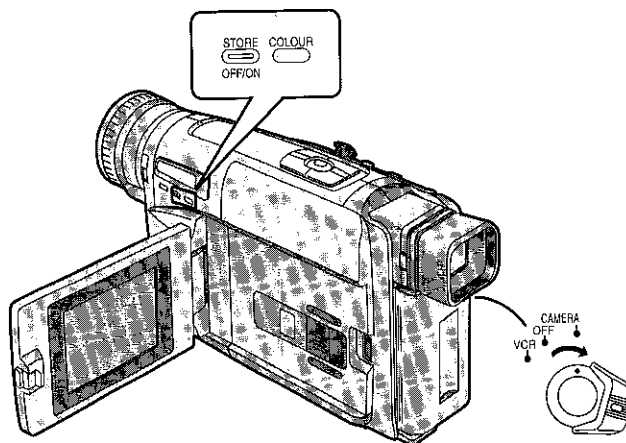
Title	Procedure	
<p>Starting to Record with Gradually Appearing Picture and Sound (Fading In)</p> <p>Fading-in lets you make the picture and sound appear gradually from a black screen at the beginning of a scene.</p> 	<p>1</p> <p>With the Movie Camera in the Recording Pause Mode, keep the Fade Button [FADE] pressed. The picture gradually disappears.</p> 	<p>2</p> <p>When the picture has completely disappeared, press the Recording Start/Stop Button to start recording.</p> 
<p>Ending the Recording of a Scene with Gradually Disappearing Picture and Sound (Fading Out)</p> <p>Fading-out lets you make the picture and sound disappear gradually into a black screen at the end of a scene.</p> 	<p>1</p> <p>During recording, keep the Fade Button [FADE] pressed. The picture gradually disappears.</p> 	<p>2</p> <p>After the picture has completely disappeared, press the Recording Start/Stop Button to stop recording. The Movie Camera is in the Recording Pause Mode.</p> 

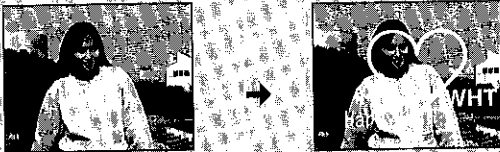

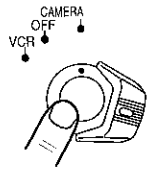
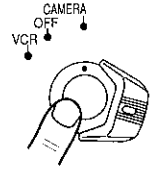
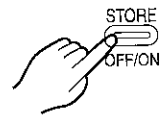
	<i>Remarks, etc.</i>
<p>3 Approximately 3 seconds after the recording has started, release the Fade Button [FADE]. The picture gradually appears again.</p> 	
<p>3 Release the Fade Button [FADE].</p> 	

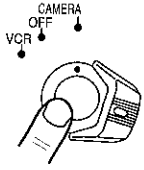
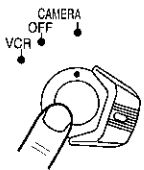


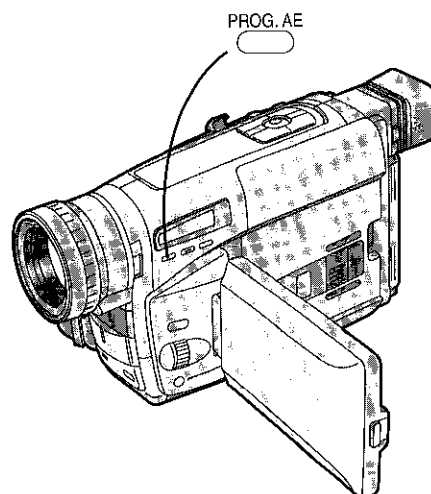
Title	Procedure	
<p>Creating Your Own Titles and Inserting Them During Recording (Digital Superimposer Function)</p> <p>This function lets you store the image of a handwritten title, signboard, printed title, (or some similar object with strong contrast) in the Movie Camera's digital image memory. Then you can change the dark parts of this image to a desired colour and superimpose it during recording.</p> <p>1) Storing Your Own Title In the Digital Image Memory</p> 	<p>1</p> <p>Prepare a title that has strong contrast (e.g. write with a thick black marker on white paper).</p> 	<p>2</p> <p>With the Movie Camera in the Recording Pause Mode, aim it at the title. If the Full Auto Mode does not provide a sharp picture, adjust the focus manually.</p> 
<p>2) Selecting the Desired Colour of Your Own Title</p>   	<p>1</p> <p>Press the [OFF/ON] Button briefly to make the title appear.</p> 	<p>2</p> <p>Press the [COLOUR] Button repeatedly until the desired colour is displayed.</p> 







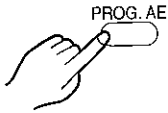





		Remarks, etc.
<p>3</p> <p>Press the [STORE] Button for more than 2 seconds. The title is now stored in the digital image memory and it remains displayed.</p> 	<p>4</p> <p>Press the [OFF/ON] Button briefly to make the title disappear. Pressing the [OFF/ON] Button briefly repeatedly makes the title appear and disappear.</p> 	<ul style="list-style-type: none"> • The title stored in the digital image memory may be automatically cancelled when you store a new title, remove the Battery, disconnect the AC Adaptor, or when the Battery becomes discharged. • By displaying the title which you stored in the digital image memory and using the Digital Fade 1, Digital Fade 2 or Digital Fade 3 Function, you can fade the title together with the picture. • It is not possible to apply the Negative Effect when storing a title in the digital image memory. • After turning the Movie Camera off and then on again, the title that had been displayed in the picture is no longer displayed. To make it appear again, press the [OFF/ON] Button. • When you want to capture a small title, use the Macro Close-up Function. (p. 29) • As the title picture is automatically cropped on all four sides, aim the Movie Camera so that there is sufficient empty space around the actual title. • When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), inserting your own titles in the picture is not possible.
		<ul style="list-style-type: none"> • The colours of the title change in the following order: White [WHT] → Yellow [YEL] → Magenta [MAG] → Red [RED] → Cyan [CYN] → Green [GRN] → Blue [BLU] → Black [BLK] → White [WHT] → []: Colour Indications displayed on the LCD Monitor or in the Viewfinder










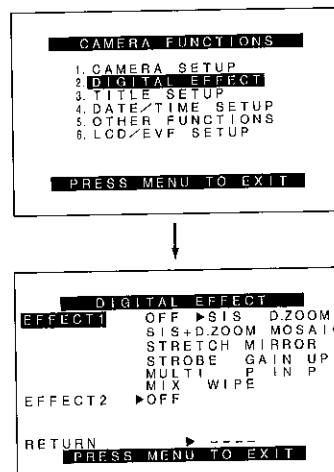
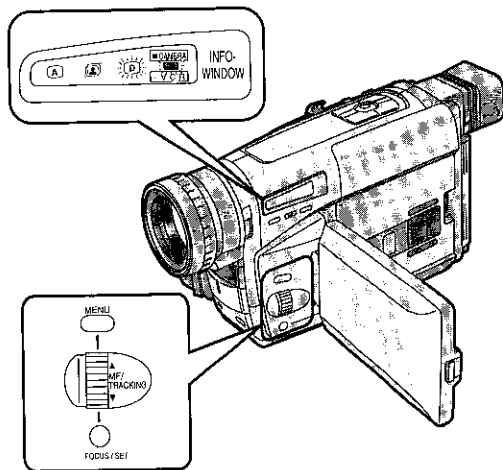
Title	Procedure	
<p>Creating Your Own Titles and Inserting Them During Recording (Cont.) (Digital Superimposer Function)</p> <p>3) Recording with the Title from the Memory Superimposed over the Moving Picture</p> <p>■ Inserting Your Own Title at the Beginning of a Recording</p> 	<p>1</p> <p>Press the [OFF/ON] Button briefly to make the title appear.</p> 	<p>2</p> <p>Press the Recording Start/Stop Button to start recording.</p> 
<p>■ Inserting Your Own Title During Recording</p>	<p>1</p> <p>Press the Recording Start/Stop Button to start recording.</p> 	<p>2</p> <p>At the point where you want to insert the title, press the [OFF/ON] Button briefly to make the title appear.</p> 

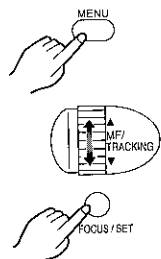
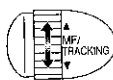
	<i>Remarks, etc.</i>
<p>3</p> <p>Press the Recording Start/Stop Button to stop recording.</p> 	<ul style="list-style-type: none"> • Confirm that the colour indicated is suitable for the intended scene. If necessary, change the colour. (p. 38) • To make the title disappear while the recording of the scene continues, press the [OFF/ON] Button briefly.
<p>3</p> <p>Press the Recording Start/Stop Button to stop recording.</p> 	<ul style="list-style-type: none"> • To make the title disappear while the recording of the scene continues, press the [OFF/ON] Button briefly.



Title	Procedure
<p>Recording in Special Situations (Programme AE) This function lets you select Automatic Exposure settings optimized for special recording situations.</p> 	<p>1 Press the [PROG. AE] Button to the desired mode ([], [], [], [] or []).</p>  <p>[] Sports Mode To record scenes with fast-moving subjects such as sports scenes.</p> <p>[] Portrait Mode To make subjects stand out sharply from the background.</p> <p>[] Low Light Mode To record dark scenes more brightly.</p> <p>[] Spotlight Mode To record subjects under bright spotlights such as at a party, in the theatre, etc.</p> <p>[] Surf & Snow Mode To record subjects in brightly lit surroundings such as on a ski slope, beach, etc.</p>

	<i>Remarks, etc.</i>
Cancelling the Programme AE Function Press the [PROG. AE] Button to set to [AUTO].	<ul style="list-style-type: none"> • During recording, it is not possible to change the recording mode ([AUTO], [MNL], [], [], [], [], [], []), even if you press the [PROG. AE] Button. • It is not possible to use any of the Programme AE Modes when the 0 Lux Night View Mode is activated. Sports Mode <ul style="list-style-type: none"> • When playing back on a VCR scenes that you have recorded in the Sports Mode, you can enjoy slow motion and still playback of very sharp images with fine details. • During normal playback, movements in the picture may not be smooth. • Avoid recording under fluorescent, mercury-vapour or sodium lamps in this mode, as the colour and the brightness of the playback picture may fluctuate. • When recording subjects lit by strong lights or with much light reflection, the playback picture may contain vertical streaks of light. • When the scene is not sufficiently lit, the [] indication flashes. • When using this mode for recording indoors, the playback picture may flicker. Portrait Mode <ul style="list-style-type: none"> • When using this mode for recording indoors, the playback picture may flicker. Low Light Mode <ul style="list-style-type: none"> • It may not be possible to sufficiently brighten up extremely dark scenes. • The use of this mode for recording may cause noise in the playback picture. Spotlight Mode <ul style="list-style-type: none"> • When using this mode, the recorded picture may be extremely dark. • If a subject is extremely bright, the recorded picture may be whitish. Surf & Snow Mode <ul style="list-style-type: none"> • If a subject is extremely bright, the recorded picture may be whitish.



Title	Procedure	
<p>Recording with Special Effects (Digital Effects)</p> <p>In addition to the Super Image Stabilizer and Digital Zoom, this Movie Camera offers you various digital effect modes to make it easy to enhance your scenes in many creative ways.</p> <ul style="list-style-type: none"> • When you select the Super Image Stabilizer Mode, the [LAMP] Lamp lights. When you select any other digital effect, the [D] Lamp lights. 	<p>1</p> <p>Select the [DIGITAL EFFECT] on the [CAMERA FUNCTIONS] Main-Menu. (p. 12)</p> 	<p>2</p> <p>Turn the [▲▼] Dial to select [EFFECT1] or [EFFECT2].</p> 
<p>Digital Effects 1 [EFFECT1]</p> <ol style="list-style-type: none"> 1 Super Image Stabilizer Mode [SIS] (p. 46) This prevents shaky pictures when recording in the tele range of from a moving vehicle. 2 Digital Zoom Mode [D.ZOOM] (p. 46) It enlarges the subject beyond the optical zooming range. 3 Super Image Stabilizer and Digital Zoom Mode [SIS+D.ZOOM] (p. 46) This combination mode allows recording in the extreme tele range and prevents shaky picture. 4 Mosaic Mode [MOSAIC] The picture becomes mosaic-like. 5 Stretch Mode [STRETCH] The picture is stretched horizontally while its height remains unchanged. 6 Mirror Mode [MIRROR] The right half of the picture is a mirror image of the left half. 	<ol style="list-style-type: none"> 7 Strobe Mode [STROBE] The picture has a stroboscope-like effect. <ul style="list-style-type: none"> • Since the strobe pictures are recorded from the digital image memory, the picture quality is slightly inferior to that of normally recorded pictures. • When recording under fluorescent lamps, the brightness of the picture may fluctuate. 8 Gain-up Mode [GAIN UP] It electronically brightens up the picture. In this mode adjust the focus manually. <ul style="list-style-type: none"> • It is not possible to use the Gain-up Mode together with the Sports Mode or the Portrait Mode. • Some after-image distortion may occur during recording with the Gain-up Function. • When the Gain-up Mode is used, it is not possible to manually adjust the white balance or to cancel the manually adjusted white balance setting. • When the Gain-up Mode is used, the focus can only be adjusted manually even if the [AUTO] Indication is displayed. 	



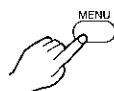
3

Press the [SET] Button to select the desired digital effect.



4

Press the [MENU] Button to exit the Menu.



Cancelling the Digital Effect

Set [EFFECT1] or [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

Remarks, etc.

- If you set the [CAMERA/OFF/VCR] Switch to [OFF] and then set it to [CAMERA] again, the indication of the selected digital effect flashes for a few seconds to inform you of the selected setting.
- If you have set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [SEPIA] or [B/W], changing the selected white balance mode is not possible.
- In the Multi Image Mode, Picture-in-Picture Mode, Mix Mode, and Wipe Mode, it is not possible to use any of the Digital Fade Modes.
- In the Multi Image Mode and Picture-in-Picture Mode, normal fading in/out is not possible.
- When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), the Multi Image, Picture-in-Picture, Mix, and Wipe Modes cannot be used.

9 Multi Image Mode [MULTI] (p. 48, 50)

The screen is divided into 9 small still fields.

- The 9 small pictures are recorded with slightly inferior picture quality compared to that of normal moving pictures.

10 Picture-in-Picture Mode [P IN P] (p. 52)

A small still picture is inserted and displayed inside the normal picture.

- The small picture is recorded with slightly inferior picture quality compared to that of normal moving pictures.

11 Mix Mode [MIX] (p. 54)

It gradually fades out one scene while fading in the new scene over it.

12 Wipe Mode [WIPE] (p. 54)

With this function, you can change over from one scene to the next like drawing a curtain.

Digital Effects 2 [EFFECT2]

13 Negative Mode [NEGA]

The recorded pictures have reversed colours similar to photographic negatives.

14 Solarisation Mode [SOLARI]

The picture is recorded with an effect similar to a painting.

15 Sepia Mode [SEPIA]

Scenes are recorded with a brown tint similar to the colour of old photographs.

16 Black & White Mode [B/W]

The picture is recorded in black and white.

17 Digital Fade 1 Mode [D.FADE1] (p. 56)

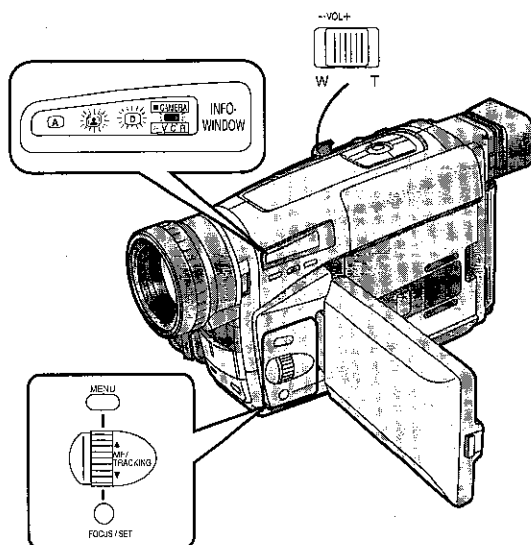
The picture fades in starting at the centre and extending toward the edges, and it fades out in reverse direction.

18 Digital Fade 2 Mode [D.FADE2] (p. 56)

The picture fades in from a white screen and fades out to white in small dots similar to snow melting or falling.

19 Digital Fade 3 Mode [D.FADE3] (p. 56)

The picture fades in with a wipe effect from a black screen and fades out to black.



CAMERA FUNCTIONS

1. CAMERA SETUP
2. **DIGITAL EFFECT**
3. TITLE SETUP
4. DATE/TIME SETUP
5. OTHER FUNCTIONS
6. LCD/EVF SETUP

PRESS MENU TO EXIT

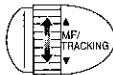

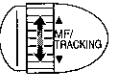



DIGITAL EFFECT

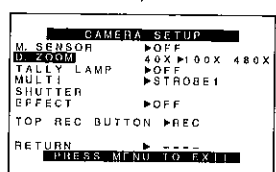
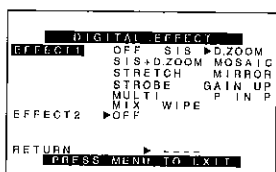
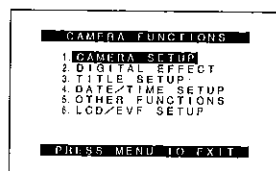
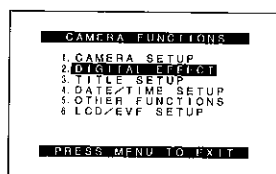
EFFECT1 OFF ▶ SIS D.ZOOM
 SIS+D.ZOOM MOSAIC
 STRETCH MIRROR
 STROBE GAIN UP
 MULTI P IN P
 MIX WIPE

EFFECT2 ▶ OFF

RETURN
 PRESS MENU TO EXIT

SIS Mode

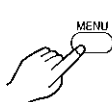
Title	Procedure	
<p>Recording with Minimised Camera Shake (Super Image Stabilizer)</p> <p>In recording situations where shaking of the Movie Camera is likely to happen, for example when you have zoomed in on a distant subject or when you record while walking, you can use this function to stabilize the image.</p>	<p>1</p> <p>After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44) Turn the [▲▼] Dial to select [EFFECT1].</p> 	<p>2</p> <p>Press the [SET] Button to select [SIS] or [SIS+D.ZOOM]. The [] and/or [] Lamp lights.</p> 
<p>Using the Digital Zoom Function</p> <p>This function is convenient when you record a very distant subject and want to enlarge it even further than is possible with the normal (optical) zoom function.</p>	<p>1</p> <p>After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44) Turn the [▲▼] Dial to select [EFFECT1].</p> 	<p>2</p> <p>Press the [SET] Button to select [D.ZOOM] or [SIS+D.ZOOM]. The [] and/or [] Lamp lights.</p> 
	<p>5</p> <p>Press the [SET] Button to select the desired digital zoom range up to 40X, 100X or 480X.</p> 	<p>6</p> <p>Press the [MENU] Button to exit the Menu. The [D.ZOOM] and/or [] Indication appears.</p> 



D.Zoom Mode

3

Press the [MENU] Button to exit the Menu. The [D.ZOOM] and/or [D.ZOOM] Indication appears.

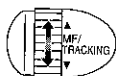


Cancelling the Super Image Stabilizer Function

Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

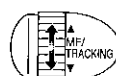
3

Turn the [▲▼] Dial to select [RETURN] and then press the [SET] Button to select [YES].



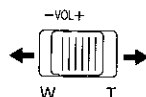
4

Select [D.ZOOM] on the [CAMERA SETUP] Sub-Menu. (p. 12)



7

Push toward [T] or [W] to zoom in or out as desired.



Cancelling the Digital Zoom Function

Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].

Remarks, etc.

Notes for Use of the Super Image Stabilizer Function

- When you use the Super image Stabilizer Function, the shutter speed is automatically adjusted between 1/50 s and 1/125 s according to the brightness of the scene.
- When you cancel the Super image Stabilizer Function also resets the shutter speed to 1/50 s. However, after selecting the Sports Mode or the Portrait Mode, cancelling the Super Image Stabilizer Function does not reset the shutter speed to 1/50 s.

In the Following Recording Conditions, the Picture Stabilizing Effect May Not Be Sufficient:

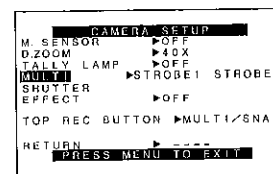
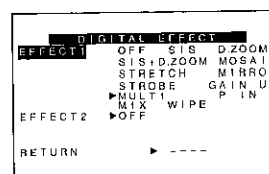
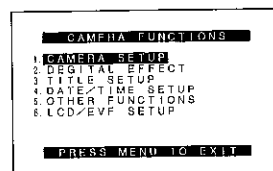
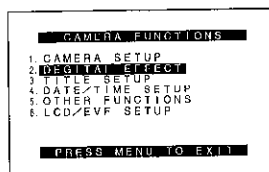
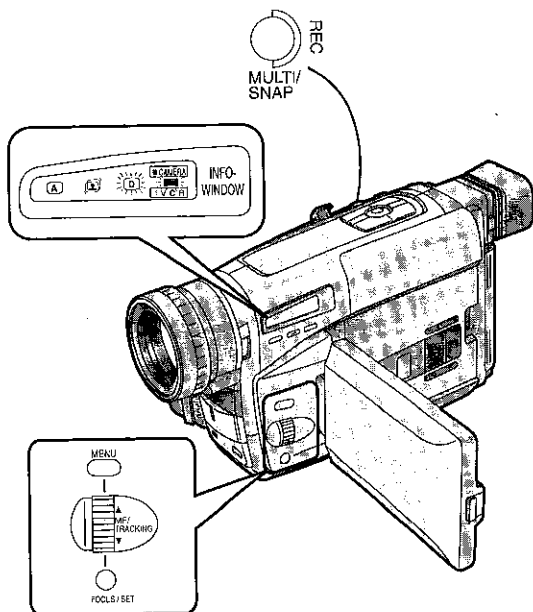
- Subjects with horizontal or vertical stripes
- Flat subjects
- Dark subjects (In this case, the [D.ZOOM] Indication flashes. Increase the amount of light.)
- Subject under many fluorescent lamps.
- Fast-moving subjects
- Subjects with a flat background

When Using the Super Image Stabilizer Function, the Picture Changes as Follows:

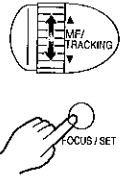
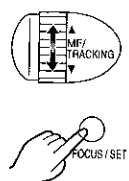
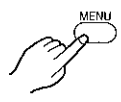

- The picture quality deteriorates slightly.
- Under fluorescent lamps, the picture brightness may fluctuate and the colours may be unnatural.

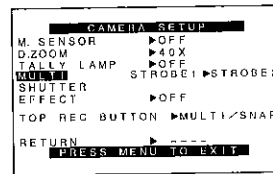
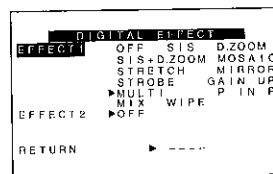
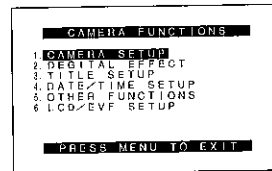
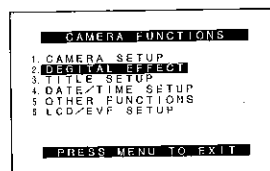
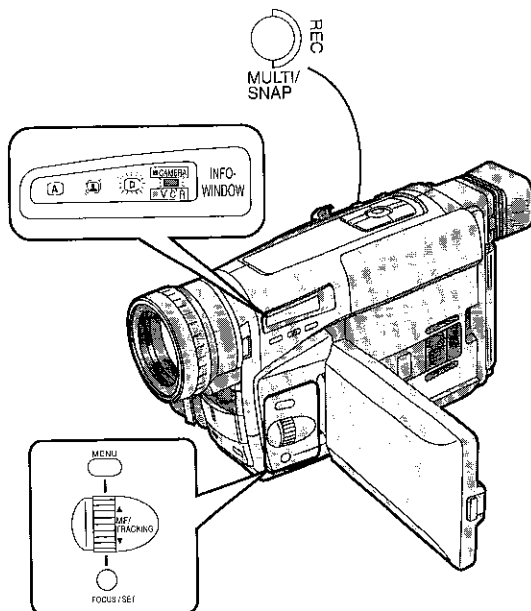
Notes for Use of the Digital Zoom Function

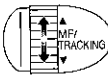

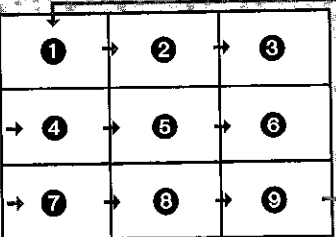
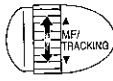

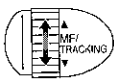

- When using the Digital Zoom Function, the picture quality is somewhat reduced.
- The zooming speed is variable. The farther you push the [W/T] Zoom Lever toward [W] or [T], the faster the zooming speed becomes.
- With the Digital Zoom Function activated, you can optically zoom between 1X (wide-angle) and 20X and digitally between 21X and 480X. The changeover between optical and digital zooming is automatic.
- Within the digital zoom range (21X-480X), it is not possible to adjust the white balance manually or to cancel the manually adjusted white balance setting.
- After selecting the Digital Zoom Mode on the Movie Camera, digital zooming can also be operated with the Remote Controller.

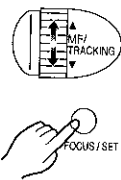
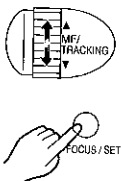
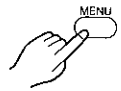
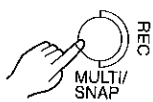


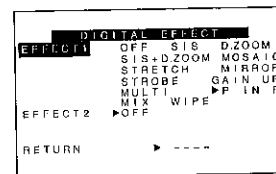
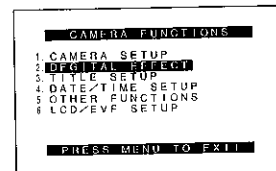
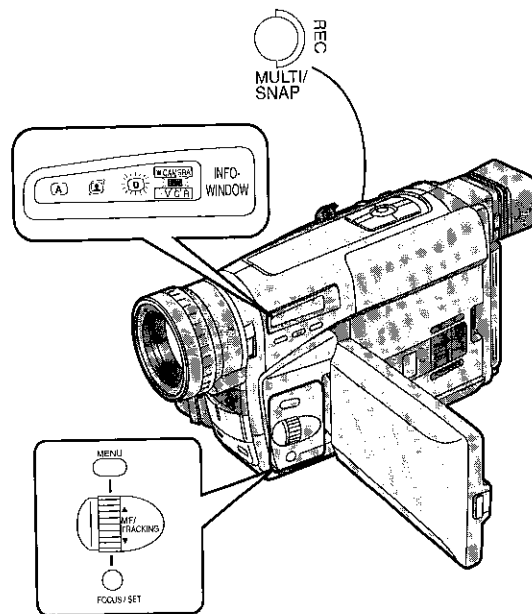
Title	Procedure	
<p>Displaying 9 Small Still Pictures on the Screen (Multi Image)</p> <p>The Multi-Image Mode lets you divide the screen into 9 small fields. You can then fill them with still pictures using the Multi Image Strobe 1 Mode (explained below) or the Multi Image Strobe 2 Mode (p. 50). You can use these functions in the Recording and Recording-Pause Modes.</p> <p>1) Capturing and Displaying a Sequence of 9 Still Pictures (Multi Image Strobe 1 Mode)</p> <p>This function captures and displays a sequence of 9 still pictures over approximately 1.5 seconds. This is very convenient for motion analysis of sports action, animal studies, etc.</p> <div data-bbox="365 1438 699 1668"> </div>	<p>1</p> <p>After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)</p> <p>Turn the [▲▼] Dial to select [EFFECT1].</p> <div data-bbox="938 1120 1050 1198"> </div>	<p>2</p> <p>Press the [SET] Button to select [MULTI]. The [LAMP] lights.</p> <div data-bbox="1236 1120 1348 1198"> </div>
	<p>5</p> <p>Turn the [▲▼] Dial to select [MULTI] and then press the [SET] Button to select [STROBE1].</p> <div data-bbox="949 1556 1061 1635"> </div> <div data-bbox="938 1657 1050 1736"> </div>	<p>6</p> <p>Turn the [▲▼] Dial to select [TOP REC BUTTON] and then press the [SET] Button to select [MULTI/SNAP].</p> <div data-bbox="1236 1556 1348 1635"> </div> <div data-bbox="1220 1657 1332 1736"> </div>

		Remarks, etc.
<p>3</p> <p>Turn the [▲▼] Dial to select [RETURN] and then press the [SET] Button to select [YES].</p> 	<p>4</p> <p>Turn the [▲▼] Dial to select [CAMERA SETUP] and then press the [SET] Button. The [CAMERA SETUP] Sub-Menu appears.</p> 	<ul style="list-style-type: none"> • It is not possible to use the Multi Image Mode together with the Snapshot Mode. • In the Multi Image Mode, normal fading in/out and using any of the Digital Fade Modes are not possible. • The Sepia or Black & White Modes cannot be used for the displayed 9 still pictures (even though these indications may appear). • If you press the [MULTI] Button during recording, a small noise may also be recorded. <p>Erasing the 9 Still Pictures Press the [MULTI] Button. If you press the [MULTI] Button again, another sequence of 9 still pictures is captured and displayed.</p> <p>Cancelling the Multi Image Mode Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p>
<p>7</p> <p>Press the [MENU] Button to exit the Menu. The [MULTI] Indication appears.</p> 	<p>8</p> <p>Press the [MULTI] Button at the scene that you want to capture as a sequence of 9 still pictures. A sequence of 9 still pictures appears.</p> 	


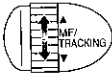


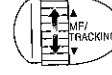



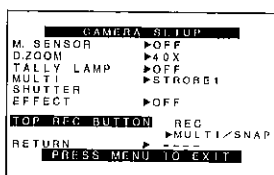
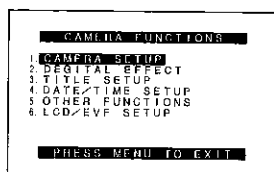
Title	Procedure	Procedure
<p>Displaying 9 Small Still Pictures on the Screen (Multi Image) (Cont.)</p> <p>2) Continuously Capturing and Displaying 9 Still Pictures (Multi Image Strobe 2 Mode)</p> <p>This function continuously captures and displays sequences of 9 still pictures taken over approximately 1.5 seconds each.</p>	<p>1</p> <p>After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)</p> <p>Turn the [▲▼] Dial to select [EFFECT1].</p> 	<p>2</p> <p>Press the [SET] Button to select [MULTI]. The [Ⓢ] Lamp lights.</p> 
	<p>5</p> <p>Turn the [▲▼] Dial to select [MULTI] and then press the [SET] Button to select [STROBE2].</p>  	<p>6</p> <p>Turn the [▲▼] Dial to select [TOP REC BUTTON] and then press the [SET] Button to select [MULTI/SNAP].</p>  

		Remarks, etc.
<p>3</p> <p>Turn the [▲▼] Dial to select [RETURN] and then press the [SET] Button to select [YES].</p> 	<p>4</p> <p>Turn the [▲▼] Dial to select [CAMERA SETUP] and then press the [SET] Button. The [CAMERA SETUP] Sub-Menu appears.</p> 	<ul style="list-style-type: none"> • It is not possible to use the Multi Image Mode together with the Snapshot Mode. • In the Multi Image Mode, normal fading in/out and using any of the Digital Fade Modes are not possible. • The Sepia or Black & White Modes cannot be used for the displayed 9 still pictures (even though these indications may appear). • If you press the [MULTI] Button during recording, a small noise may also be recorded. <p>Erasing the 9 Still Pictures After pressing the [MULTI] Button to stop the capturing and displaying of sequences of 9 pictures, press the [MULTI] Button again. If you press the [MULTI] Button once more, the capturing and displaying of sequences of 9 pictures starts again.</p> <p>Cancelling the Multi Image Mode Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p>
<p>7</p> <p>Press the [MENU] Button to exit the Menu. The [MULTI] Indication appears.</p> 	<p>8</p> <p>Press the [MULTI] Button at the scene that you want to capture as a sequence of 9 still pictures. A sequence of 9 still pictures appears.</p> 	

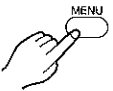

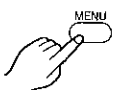



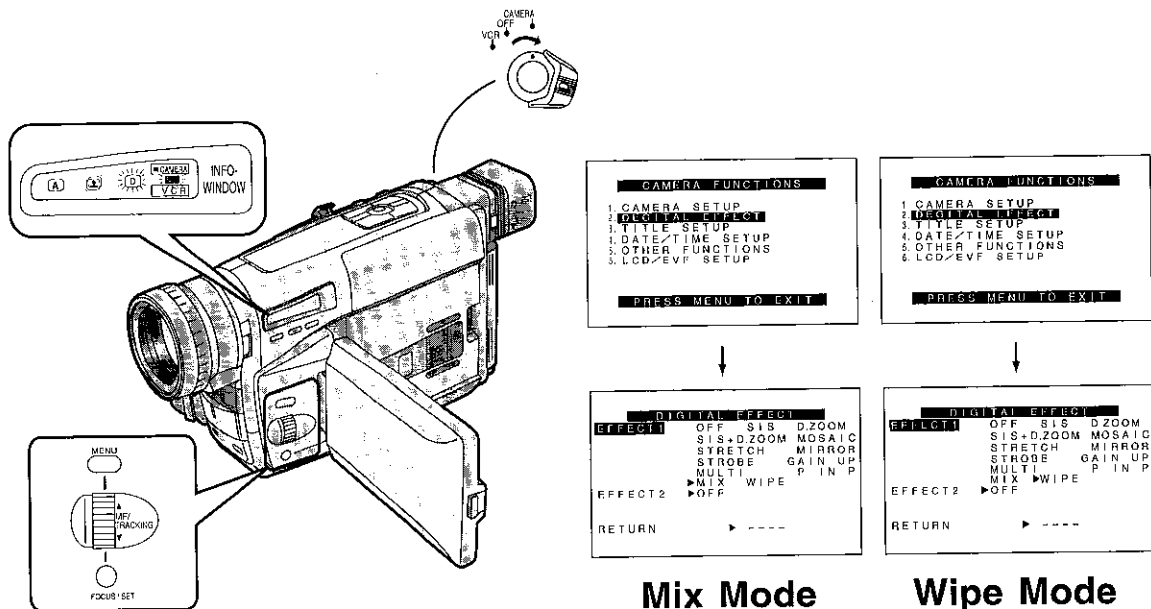
P in P Mode

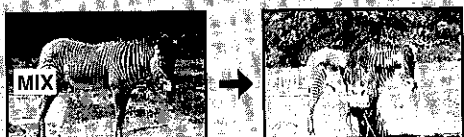
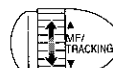
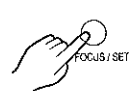

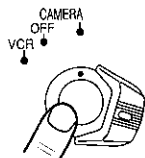
Title	Procedure	
<p>Displaying a Small Still Picture Inside the Normal Picture (Picture-in-Picture)</p> <p>This function lets you display a small still picture inside the normal picture. You can use this function in the Recording and Recording Pause Modes.</p> 	<p>1</p> <p>After setting [TOP REC BUTTON] on the [CAMERA SETUP] Sub-Menu to [MULTI/SNAP] and then displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)</p> <p>Turn the [▲▼] Dial to select [EFFECT1].</p> 	<p>2</p> <p>Press the [SET] Button to select [P IN P]. The [D] Lamp lights.</p> 
<p>Recording a Still Picture (Snapshot Recording)</p> <p>You can record a still picture together with sound for approximately 7 seconds at the press of a button. This is convenient for example for recording sharp, stable still pictures of signboards, maps, etc. in your videos.</p> 	<p>1</p> <p>After displaying the [CAMERA SETUP] Sub-Menu... (p. 12)</p> <p>Turn the [▲▼] Dial to select [TOP REC BUTTON].</p> 	<p>2</p> <p>Press the [SET] Button to select [MULTI/SNAP].</p> 

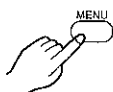
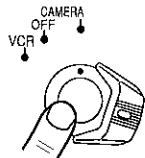
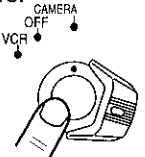
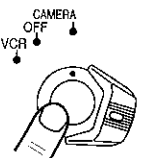


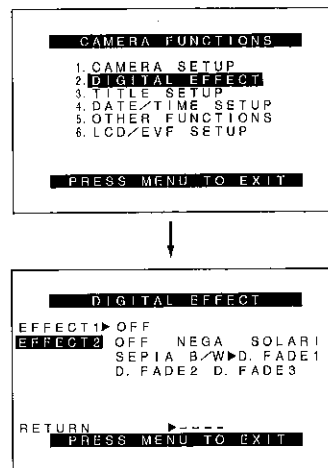
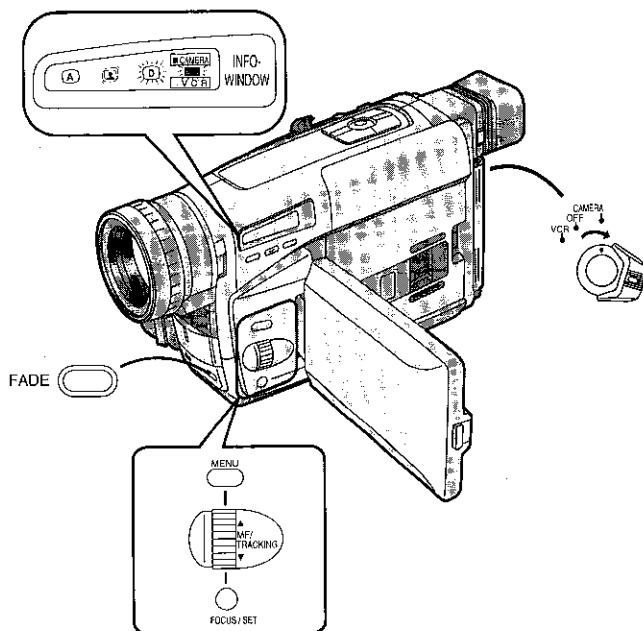
Snapshot Recording

		Remarks, etc.
<p>3</p> <p>Press the [MENU] Button to exit the menu. The [P IN P] Indication appears.</p> 	<p>4</p> <p>Aim the Movie Camera at the scene or subject that you want to capture as small still picture and press the [MULTI] Button. A small picture appears inside the normal picture.</p> 	<p>Erasing the Small Pictures Press the [MULTI] Button. If you press the [MULTI] Button again, another small picture is displayed.</p> <p>Cancelling the Picture-in-Picture Mode Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p> <ul style="list-style-type: none"> It is not possible to use the Picture-in-Picture Mode together with the Snapshot Mode. In the Picture-in-Picture Mode, normal fading in/out and using any of the Digital Fade Modes are not possible. The Sepia or Black & White Mode cannot be used for the small picture inside the normal picture (even though these indications may appear). If you press the [MULTI] Button during recording, a small noise may also be recorded.
<p>3</p> <p>Press the [MENU] Button to exit the menu.</p> 	<p>4</p> <p>Press the [SNAP] Button in the Recording Pause Mode. The image stands still and the [SNAP] Indication appears. The still picture is recorded for approximately 5 seconds.</p> 	<p>Shutter Effect Mode If you set [SHUTTER EFFECT] on the [CAMERA SETUP] Sub-Menu to [ON], the screen blinks briefly like an SLR photo camera when you press the [SNAP] Button. This visual shutter effect is also recorded.</p> <ul style="list-style-type: none"> Since the still picture is recorded from the digital image memory, the picture quality is slightly inferior to that of normally recorded pictures. To prevent picture distortion, do not move or shake the Movie Camera during still picture recording. When using the Snapshot Function repeatedly, wait at least 3-4 seconds before pressing the [SNAP] Button again. It is not possible to use Snapshot Mode together with the Mix, Wipe, Multi Image, or Picture-in-Picture Mode.



Title	Procedure	
<p>Fading Over from the Last Recorded Scene to the Next</p> <p>1) Digital Mix</p> <p>This function makes it possible to achieve a smooth transition from the last recorded scene to the next scene. When starting to record the new scene, a still picture of the last recorded scene appears, and it is then gradually replaced by the moving picture of the new scene.</p> 	<p>1</p> <p>After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44) Turn the [▲▼] Dial to select [EFFECT1].</p> 	<p>2</p> <p>Press the [SET] Button to select [MIX] or [WIPE]. The [LAMP] Lamp lights.</p> 
<p>2) Digital Wipe</p> <p>This function makes it possible to achieve a smooth transition from the last recorded scene to the next scene. When starting to record the new scene, a still picture of the last recorded scene appears, and it is then changed over to the moving picture of the new scene with Digital Wipe (like opening a curtain).</p> 	<p>5</p> <p>Press the Recording Start/Stop Button to stop recording the scene.</p> <ul style="list-style-type: none"> •The Movie Camera is in the Recording Pause Mode. •The [MIX] or [WIPE] Indication changes to [MIX] or [WIPE] to indicate that the last picture of the just recorded scene is stored in the digital image memory. 	

		Remarks, etc.
<p>3 Press the [MENU] Button to exit the Menu. The [MIX] or [WIPE] Indication appears.</p> 	<p>4 Press the Recording Start/Stop Button to start recording normally.</p> 	<p>Cancelling these Functions Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p> <ul style="list-style-type: none"> • All subsequent scene-to-scene transitions will be recorded with this Mix or Wipe Effect until you cancel the Mix or Wipe Function. • The Negative and Solarisation Effects cannot be applied to a picture stored in the digital image memory for the Mix or Wipe Function. • The Mix or Wipe Mode cannot be used together with the Snapshot Mode or any of the Digital Fade Modes.
<p>■ MIX</p> <p>6 Press to start recording the next scene.</p> <ul style="list-style-type: none"> • First the still picture (from the digital image memory) appears, and it then gradually disappears while the moving picture of the new scene gradually appears. 	<p>■ WIPE</p> <p>6 Press to start recording again.</p> <ul style="list-style-type: none"> • First, the still picture (from the digital image memory) appears and it then gradually replaced by the moving picture of the new scene, starting from the right. 	

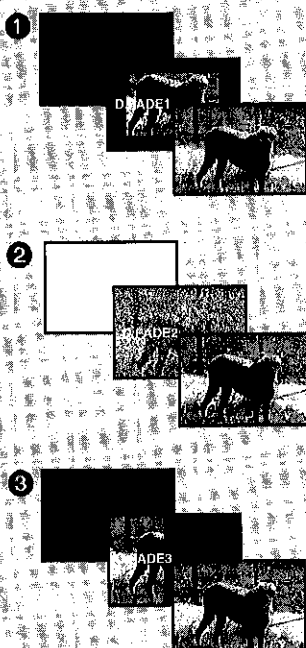


Title

Using the Digital Fade Functions

There are 3 Digital Fade Modes available.

- 1 Digital Fade 1 [D.FADE1]
- 2 Digital Fade 2 [D.FADE2]
- 3 Digital Fade 3 [D.FADE3]



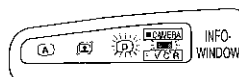
Procedure

1

■ To Fade in:
After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)

Set [EFFECT2] to [D.FADE1], [D.FADE2] or [D.FADE3] and exit the Menu.

- The [D] Lamp lights.



2

With the Movie Camera in the Recording Pause Mode, keep the Fade Button [FADE] pressed.

The picture gradually disappears.

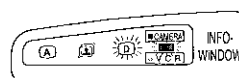


1

■ To Fade out:
After displaying the [DIGITAL EFFECT] Sub-Menu... (p. 44)

Set [EFFECT2] to [D.FADE1], [D.FADE2] or [D.FADE3] and exit the Menu.

- The [D] Lamp lights.

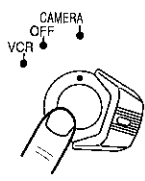

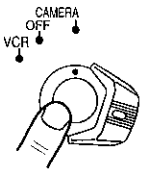



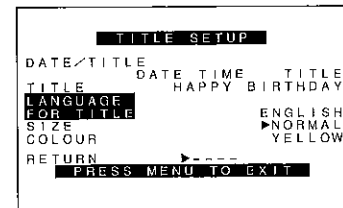
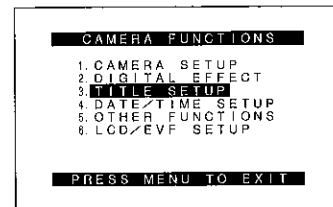
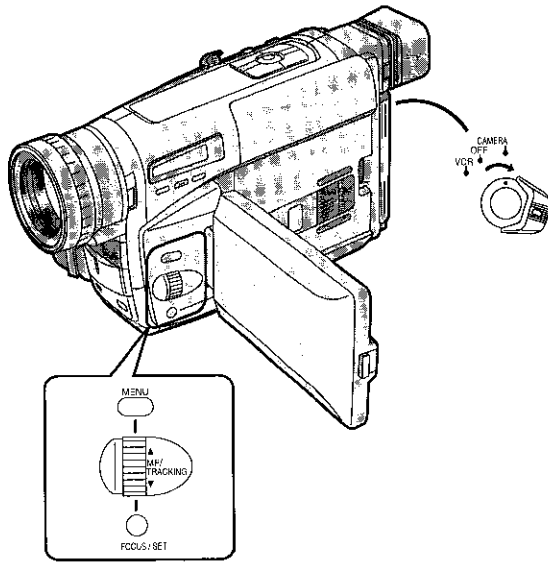
2


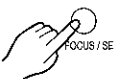

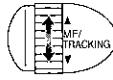
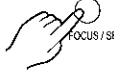
During recording, keep the Fade Button [FADE] pressed.

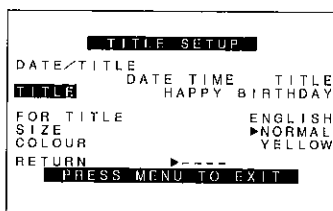
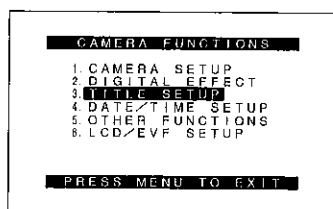
The picture gradually disappears.

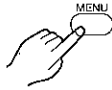
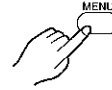


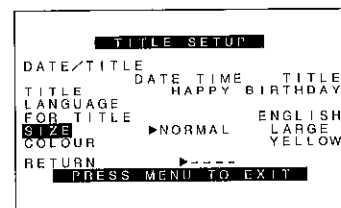
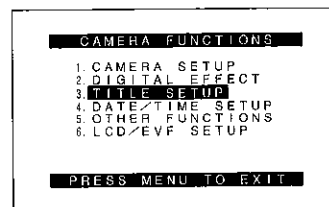
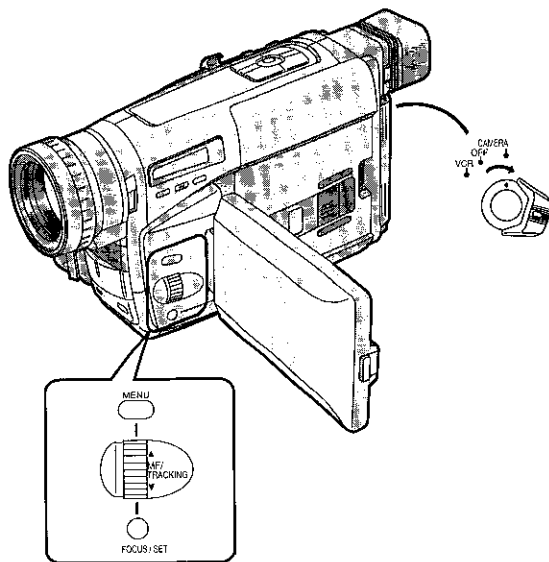
		Remarks, etc.
<p>3</p> <p>When the picture has completely disappeared, press the Recording Start/Stop Button to start recording.</p> 	<p>4</p> <p>Approximately 3-4 seconds after the recording has started, release the Fade Button [FADE]. The picture gradually appears again.</p> 	<p>Cancelling the Selected Digital Fade Function. Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p> <ul style="list-style-type: none"> It is not possible to use any of the Digital Fade Functions together with the Multi Image-Mode, Picture-in-Picture Mode, Mix Mode or Wipe Mode.
<p>3</p> <p>After the picture has completely disappeared, press the Recording Start/Stop Button to stop recording. The Movie Camera is in the Recording Pause Mode.</p> 	<p>4</p> <p>Release the Fade Button [FADE].</p> 	



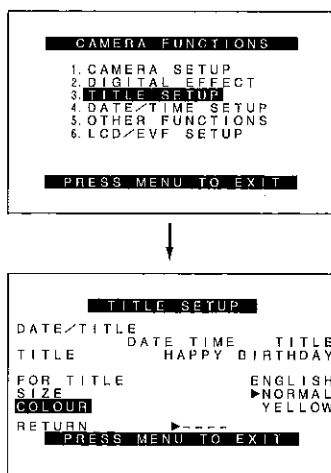
Title	Procedure	
<p>Recording with Pre-programmed Titles Inserted in the Picture</p> <p>You can insert one of 10 pre-programmed titles when recording of special occasions such as weddings and birthday parties. These titles are available in 6 languages.</p> <p>1) Selecting the Desired Language</p>	<p>1</p> <p>After displaying the [TITLE SETUP] Sub-Menu... (p. 12) Turn the [▲▼] Dial to select [LANGUAGE FOR TITLE].</p> 	<p>2</p> <p>Press [SET] Button repeatedly to select the desired language.</p> 
<p>2) Selecting the Desired Pre-programmed Title</p> 	<p>1</p> <p>After displaying the [TITLE SETUP] Sub-Menu... (p. 12) Turn the [▲▼] Dial to select [TITLE].</p> 	<p>2</p> <p>Press the [SET] Button repeatedly to select the desired title.</p> 

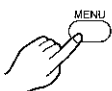
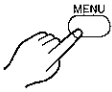


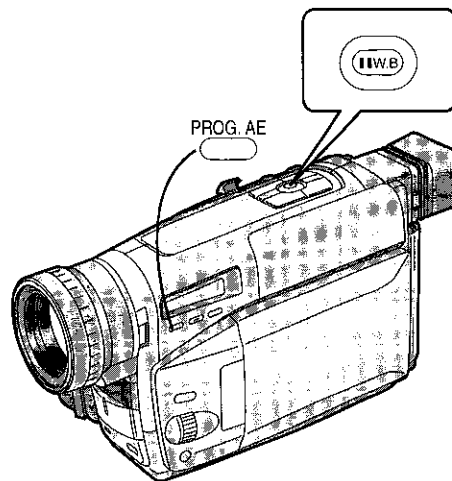
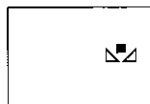
	Remarks, etc.
<p>3</p> <p>Press [MENU] Button to exit the Menu.</p> 	<ul style="list-style-type: none"> • Repeatedly pressing the [SET] Button changes the language in the following order. [ENGLISH] → [GERMAN] → [FRENCH] → [ITALIAN] → [SPANISH] → [RUSSIAN] → [ENGLISH] → • The Date/Time/Title Indication remains displayed when you exit the [TITLE SETUP] Sub-Menu after having change the language of the title, the type of Date/Time/Title Indication (p. 29), the title itself, the size of the title (p. 60) or the colour of the title (p. 60).
<p>3</p> <p>Press the [MENU] Button to exit the Menu.</p> 	<ul style="list-style-type: none"> • Repeatedly pressing of the [SET] Button changes the title in the following order. (In the other available languages, they are arranged in the same order.) [HOLIDAY] → [HAPPY BIRTHDAY] → [WEDDING] → [FAMILY] → [PARTY] → [THE END] → [CONGRATULATIONS] → [MERRY CHRISTMAS] → [HAPPY MEMORIES] → [HAPPY NEW YEAR] → [HOLIDAY] →

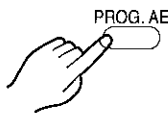
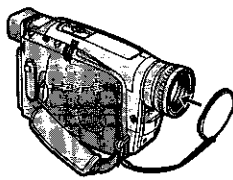


Title	Procedure	
<p>Recording with Pre-programmed Titles Inserted in the Picture (cont.)</p> <p>3) Selecting the Size of the Pre-programmed Title Indication</p> <div data-bbox="284 1010 751 1099"> </div>	<p>1</p> <p>After displaying the [TITLE SETUP] Sub-Menu... (p. 12) Turn the [▲▼] Dial to select [SIZE].</p> <div data-bbox="954 1025 1066 1099"> </div>	<p>2</p> <p>Press the [SET] Button repeatedly to select [NORMAL] or [LARGE].</p> <div data-bbox="1241 1010 1358 1084"> </div>
<p>4) Selecting the Desired Colour of the Pre-programmed Title</p> <p>You can select the colour of the title from among 8 colours.</p>	<p>1</p> <p>After displaying the [TITLE SETUP] Sub-Menu... (p. 12) Turn the [▲▼] Dial to select [COLOUR].</p> <div data-bbox="943 1581 1054 1655"> </div>	<p>2</p> <p>Press the [SET] Button repeatedly to select the desired colour.</p> <div data-bbox="1230 1565 1347 1639"> </div>



	Remarks, etc.
<p>3</p> <p>Press the [MENU] Button to exit the Menu.</p> 	<ul style="list-style-type: none"> • When a large-size title is displayed, some indications do not appear even if the corresponding modes are activated. • If you set [SIZE] on the [TITLE SETUP] Sub-Menu to [LARGE], the large [RECORD] and [PAUSE] Indications, which usually appear briefly when you start or stop recording, do not appear.
<p>3</p> <p>Press the [MENU] Button to exit the Menu.</p> 	<ul style="list-style-type: none"> • The colours of the title change in the following order: [WHITE] → [YELLOW] → [MAGENTA] → [RED] → [CYAN] → [GREEN] → [BLUE] → [BLACK] → [WHITE] → • When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), the title is always in white, even if you choose another colour on the menu.



Title	Procedure	
<p>Recording with Automatic White Balance Adjustment</p> <p>After pressing the [PROG. AE] Button so that the [AUTO] Indication appears, it is possible to record pictures with natural colours under almost any recording conditions.</p>	<p>1</p> <p>Press the [PROG. AE] Button repeatedly until the [AUTO] Indication appears.</p>	
<p>Recording with Manual White Balance Adjustment</p> <p>With this Movie Camera, you can also adjust the white balance manually. Use this mode for special subjects and recording conditions, such as listed (p. 90), for which the Full Auto Mode is not suitable, and for light sources outside the Auto White Balance Adjustment range. Use it also when you want to manually adjust the white balance for each new scene as professionals do.</p>	<p>1</p> <p>Press the [PROG. AE] Button repeatedly until an indication other than [AUTO] Indication appears.</p>	<p>2</p> <p>Attach the white Lens Cap and zoom in until the entire screen becomes white.</p> 

Remarks, etc.

Notes about the Recording with Automatic White Balance Adjustment

- For detailed explanations about the white balance adjustment, see p. 90.
- Be careful not to cover the White Balance Sensor for the Automatic White Balance Adjustment with your hand, etc. during recording.
- If the [W.B.] Indication is displayed with the [MNL], [ZOOM], [ZOOM], [ZOOM] or [ZOOM] Indication, press the [W.B.] Button to make the [W.B.] Indication disappear.

Notes about the Adjusting the White Balance Manually

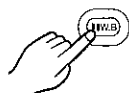
- During recording, it is not possible to change the recording mode ([AUTO], [MNL], [ZOOM], [ZOOM], [ZOOM] or [ZOOM]), even if you press the [PROG. AE] Button. (p. 42)
- If you use an additional light source with low colour temperature (e.g. halogen lamp) while recording a subject with high colour temperature (e.g. blue sky or TV screen), unnatural colours will result.
- If there are several light sources or if the illumination is weak:
In operation step 2, instead of attaching the Lens Cap, point the Movie Camera at a pure white subject.
- If you want to record under weak illumination, precise Manual White Balance Adjustment may not be possible. In this case, record in the [AUTO] Mode.
- When the Sepia Mode, Black & White Mode, Gain-up Mode or 0 Lux Night View Mode is used, it is not possible to manually adjust the white balance. Also, if the white balance was manually adjusted, it cannot be cancelled even if you press the [W.B.] Button.

In the Following Cases, the [W.B.] Indication Flashes:

- Under weak illumination, precise manual white balance adjustment may not be possible. In this case, press the [PROG. AE] Button repeatedly until the [AUTO] Indication appears.
- The [W.B.] Indication flashes while the white balance is being adjusted. When the white balance adjustment is finished, the [W.B.] Indication stops flashing and remains lit.
- When the previously set white balance setting is maintained.
- When you are trying to adjust the white balance in the digital zoom range (21X - 480X). In this case, first adjust the white balance in the optical zoom range (1X - 20X) and then zoom back to within the Digital Zoom Mode.
- We recommend that you adjust the white balance anew whenever there is a change in the recording situation.

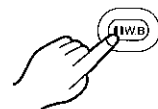
3

Keep the [W.B.] Button pressed until the [W.B.] Indication stops flashing and remains lit.



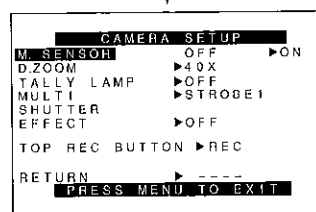
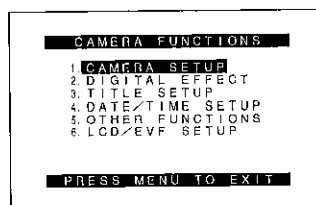
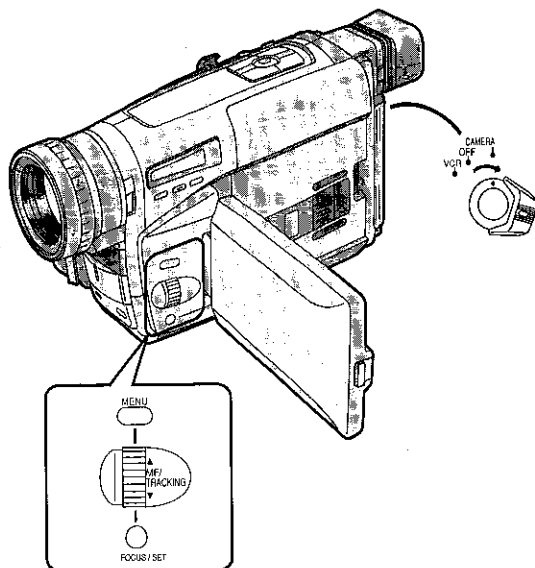
Returning to the Auto White Balance Adjustment Mode

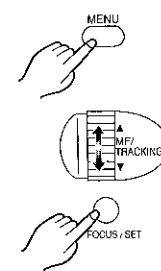
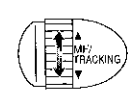
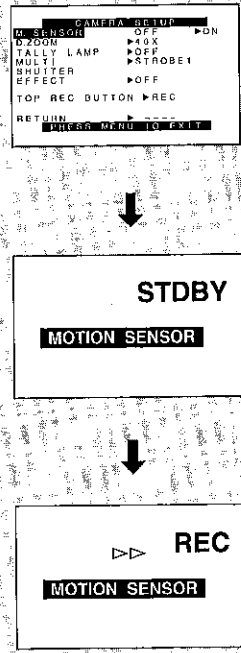
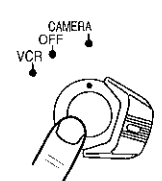
Press the [W.B.] Button once to make the [W.B.] Indication disappear. Or, press the [PROG. AE] Button repeatedly until the [AUTO] indication appears.



PROG. AE





Title	Procedure	Procedure
<p>Motion-Sensor-Controlled Recording</p> <p>In this mode, recording automatically starts when the built-in Motion Sensor detects some movement in the picture.</p> <ul style="list-style-type: none"> • Select the desired Date/Time/Title Indications before activating the Motion-Sensor Mode. 	<p>1</p> <p>Select the [CAMERA SETUP] on the [CAMERA FUNCTIONS] Main-Menu.</p> 	<p>2</p> <p>Turn the [▲▼] Dial to select [M.SENSOR].</p> 
	<p>Cancelling the Motion Sensor Function During Stand-by Mode</p> <p>Set [M.SENSOR] on the [CAMERA SETUP] Sub-Menu to [OFF].</p>	<p>Cancelling the Motion Sensor Function During Recording</p> <p>Press the Recording Start/Stop Button for 2 seconds.</p> 

3

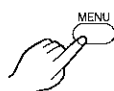
Press the [SET] Button to select [ON].



4

Press the [MENU] Button to exit the Menu.

The [STDBY] Indication appears.



Approximately 1 second after the Movie Camera's Motion Sensor has detected movement in the picture, recording automatically starts. Approximately 10 seconds after movement in the picture has stopped, recording automatically stops and the Movie Camera is in the Motion Sensor Stand-by Mode.

When the Movie Camera remains in the Motion Sensor Stand-by Mode for more than 6 minutes, the Viewfinder or LCD Monitor turns off, and the [A] Lamp goes out to conserve power. When the Motion Sensor again detects movement in the picture, recording automatically restarts after approximately 4 seconds, and the Viewfinder or LCD Monitor turns on, and the [A] Lamp lights.

Remarks, etc.

In the Following Recording Situations, the Motion Sensor May Not Work Correctly:

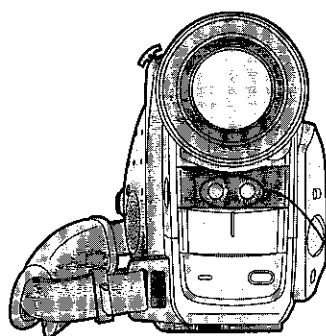
- A white wall or another single-colour background behind the subject.
- A subject with horizontal, vertical or oblique stripes.
- Sudden changes in the surrounding brightness.
- Exposure of the Movie Camera to slight shocks or vibration.
- Recording in a dimly lit place. (The [MOTION SENSOR] Indication flashes.)
- Extremely slow or fast movement of the subject.
- Very little movement of the subject.
- A very small subject.
- Movement of the subject near the edge of the picture.
- A background with horizontal or vertical stripes.

The Following Function Do Not Activate In the Motion Sensor Function Stand-by Mode:

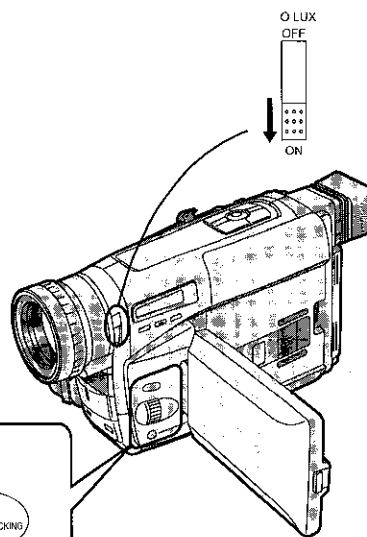
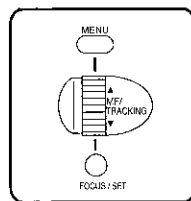
- Normal Recording
- Digital Zoom
- Recording Check
- Super Image Stabilizer
- Digital Effect
- Camera Search Function.

The Following Situation Cancels the Motion Sensor Function:

- If there is a power interruption.
- To prevent accidental recording start caused by Movie Camera movement, the Movie Camera should be mounted on a tripod or be otherwise secured in a very stable position.
- Although you can select a Digital Effect on the [DIGITAL EFFECT] Sub-Menu when [M.SENSOR] on the [CAMERA SETUP] Sub-Menu is set to [ON], the Motion Sensor Function has priority and the selected digital effect is automatically cancelled.
- When [M.SENSOR] on the [CAMERA SETUP] Sub-Menu is set to [ON], it is not possible to manually start recording by pressing the Recording Start/Stop Button or to activate the Recording Check or Camera Search Function.
- When you use the AC adaptor to power the Movie Camera, the Motion Sensor Function Stand-by Mode will continue when no movement is detected in the picture, even when the tape has reached the end during recording. Therefore, we recommend that you check the tape within a week. When you use the Battery to power the Movie Camera, it remains in the Motion Sensor Function Stand-by Mode until the Battery is discharged, at which time the [CAMERA] Lamp flashes for a few seconds.
- To ensure correct functioning of the Motion Sensor Function, the moving subject should be quite large in the picture. Therefore, when you have zoomed the lens to the maximum wide-angle position, the distance between lens and subject should preferably be within about 2 metres. For subjects at larger distances, be sure to zoom in accordingly.
- The Movie Camera requires time to set up before recording starts. Therefore, the beginning of movement is not recorded.

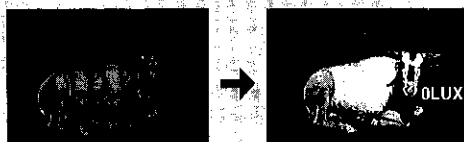


**built-in Infra-red
Beam Emitters**



Recording in Dark Places Without Any Illumination (0 Lux Night View Function)

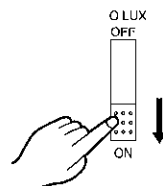
This function is convenient when you want to record at night in places without any illumination, for example for observing the behaviour of nocturnal animals, etc. In this mode, the Movie Camera emits infrared rays which makes it possible to record subjects that are invisible to the naked eye.



1

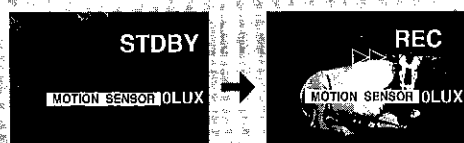
Set to [0 LUX OFF/ON] Switch to [ON].

The [0LUX] Indication appears.



Using the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function in Dark Places without Any Illumination

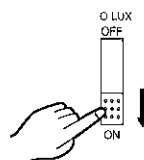
If you use the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function, recording starts automatically when the Movie Camera's built-in Motion Sensor detects some movement in the picture. This combined function is convenient for easy, unattended animal observation recordings at night.



1

Set to [0 LUX OFF/ON] Switch to [ON].

The [0LUX] Indication appears.



2

Press the [MENU] Button.

The [CAMERA FUNCTIONS] Main-Menu appears.



5

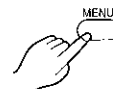
Press the [SET] Button to select [ON].

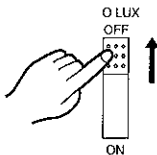
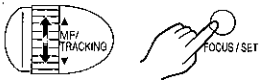
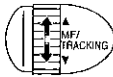


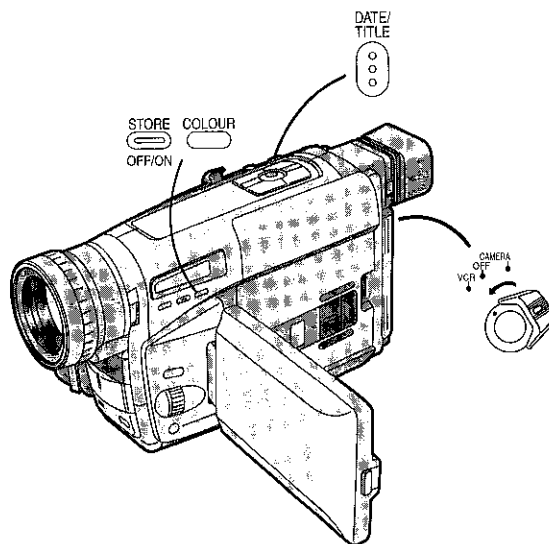
6

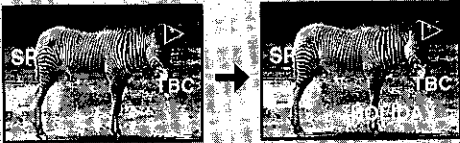
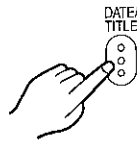
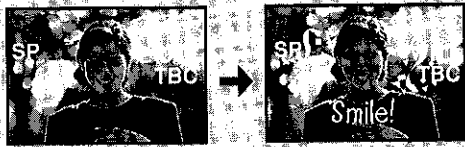

Press the [MENU] to exit the Menu.

The [STDBY] Indication appears.



		Remarks, etc.
<p>Cancelling this Function Set to [0 LUX OFF/ON] Switch to [OFF]. The [0LUX] Indication disappears.</p> 		<p>Notes for Recording in Dark Places Without Any Illumination</p> <ul style="list-style-type: none"> •The built-in Infra-red Beam Emitters light. Be careful not to cover them with your hand when recording. •Do not use the 0 Lux Night View Function in brightly lit places and never aim the Movie Camera against the sun, as this could cause irreparable damage. •The playback picture of scenes recorded with the 0 Lux Night View Function will be in black and white. •If you change the setting of the [0 LUX OFF/ON] Switch during recording, a switching noise is also recorded. •When recording in the 0 Lux Night View Function, it is not possible to adjust the white balance manually or to cancel the manually adjusted white balance setting. •It is not possible to use any of the Programme AE Modes when the 0 Lux Night View Mode is activated. •When using the 0 Lux Night View Function, the subject should be within 3 metres from the Movie Camera. •When the automatic focusing is not precise, adjust the focus manually. •If you do not want the Recording Indicating (Tally) Lamp to light during recording using the 0 Lux Night View Function, set [TALLY LAMP] on the [CAMERA SETUP] Sub-Menu to [OFF]. •If you use the Macro close-up Function and approach extremely close to the subject when recording in the 0 Lux Night View Function, the infra-red beam from the Movie Camera's built-in Infra-red Beam Emitters may not reach the subject. •As the iris is fully opened in the 0 Lux Night View Mode, subjects in white or other light colours may be recorded whitish, blurred and with weak contrast. <p>Note for Using the 0 Lux Night View Function together with the Motion-Sensor-Controlled Recording Function</p> <ul style="list-style-type: none"> •If you use the Motion Sensor Function together with the 0 Lux Night View Function, the [MOTION SENSOR] Indication flashes, and recording may not be possible in some cases.
<p>3</p> <p>Turn the [▲▼] Dial to select the [CAMERA SETUP] and then press the [SET] Button. The [CAMERA SETUP] Sub-Menu appears.</p> 	<p>4</p> <p>Turn the [▲▼] Dial to select [M.SENSOR].</p> 	
<p>Cancelling these Functions during Stand-by Mode Set [M.SENSOR] on the [CAMERA SETUP] Sub-Menu to [OFF] and then set the [0 LUX OFF/ON] Switch to [OFF].</p>	<p>Cancelling these Functions during Recording Press the Recording Start/Stop Button for more than 2 seconds and then set the [0 LUX OFF/ON] Switch to [OFF].</p>	



Title	Procedure
<p>Using Various Functions during Playback</p> <p>With this Movie Camera you can add various effects to the recorded picture during playback. This is especially convenient for creatively enhancing certain scenes when you edit individual recorded scenes into a finished video.</p> <p>1) Playback Title Indication</p> <p>The Date/Time/Title Indication that can be inserted in the pictures during recording (p. 58) can also be inserted in the picture during playback (editing). You can select the desired language, Title, colour and size on the [TITLE SETUP] Sub-Menu. (When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), the title is always in white, even if you choose another colour on the menu.)</p> 	<p>1</p> <p>During playback, press the [DATE/TITLE] Button at the desired scene to superimpose the title.</p> <ul style="list-style-type: none"> • The date and time are generated by the Movie Camera's built-in clock. 
<p>2) Playback Digital Superimposer</p> <p>This function gives the pictures the same visual effect as the Digital Superimposer Function (p. 38). You can use these functions only when the TBC Function is activated. Make sure that the [TBC] Indication is displayed.</p> 	<p>■ Storing Your Own Title in the Digital Image Memory</p> <p>During playback, when you reach the scene that you want to superimpose as a title in another scene, press for more than two seconds.</p> 

■ TBC (Time Base Corrector) Function

Playback of certain cassettes can cause slight horizontal shaking of the picture or other distortion. To minimize such distortion and ensure a stable playback picture, this Movie Camera is equipped with the TBC Function. This function is automatically activated within a few seconds after playback has started, and the [TBC] Indication appears.

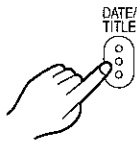
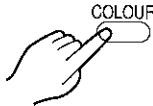
■ Cancelling the TBC Function

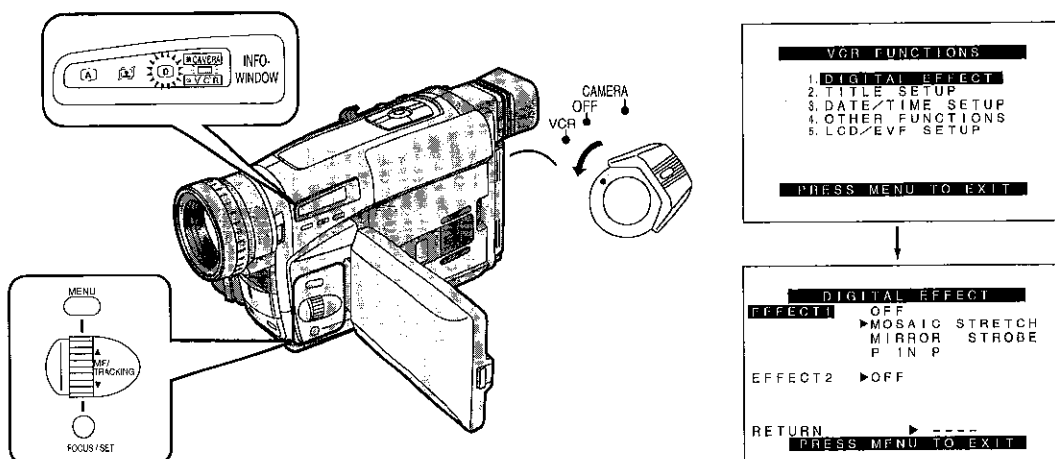
With certain cassettes, however, the TBC Function could cause slight vertical shaking or other distortion in the playback picture. In this case, first try to adjust the tracking (p. 32). If this does not improve the picture, cancel the TBC Function by keeping the [TBC] Button pressed until the [TBC] Indication disappears. If you want to turn the TBC Function on again, press the [TBC] Button for a few seconds until the [TBC] Indication reappears. Even if you cancel the TBC Function, it is automatically turned back on when you switch the Movie Camera from the Camera Mode to the VCR Mode.

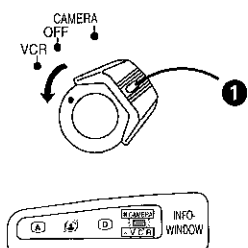
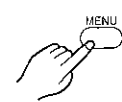

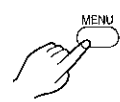
■ In the Following Cases, the TBC Function Does Not Work:

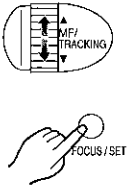
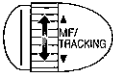
- In the Cue, Review or Still Playback Mode
- When using the Camera Search or Recording Check Function
- When adjusting the tracking
- When playing back an unrecorded part on the tape

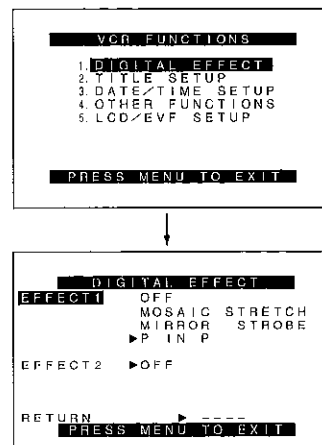
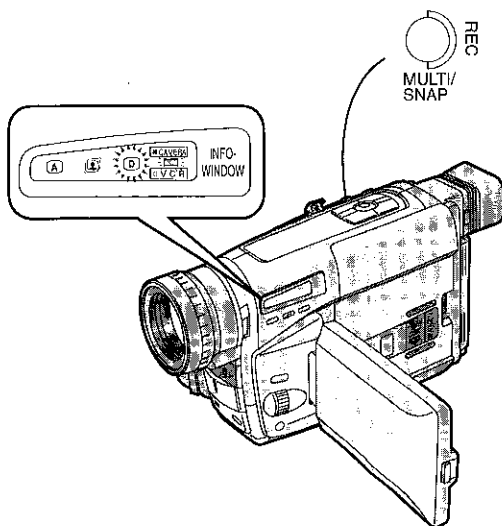
When you play back a cassette with stretched, shrunk or otherwise damaged tape, the TBC Function does not work correctly (it may repeatedly turn on and off). In this case, cancel the TBC Function.

	Remarks, etc.
<p>■ Stopping the superimposing of the title</p> <p>Press the [DATE/TITLE] Button to make the title disappear.</p> 	<p>● You can use these functions only when the TBC Function is activated. Make sure that the [TBC] Indication is displayed.</p>
<p>■ Selecting the Desired Colour for the Title</p> <p>While the title is displayed, press repeatedly until the desired colour appears.</p>  <p>■ Cancelling the Playback Digital Superimposer Function</p> <p>Press the [OFF/ON] Button briefly to make the title disappear. Pressing the [OFF/ON] Button briefly repeatedly makes the title appear and disappear.</p>	<p>● The title captured in the digital image memory remains on the screen.</p> <p>● The colours for the title change in the following order: White [WHT] → Yellow [YEL] → Magenta [MAG] → Red [RED] → Cyan [CYN] → Green [GRN] → Blue [BLU] → Black [BLK] → White [WHT] →</p> <p>● When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), inserting your own titles in the picture is not possible.</p>



Title	Procedure																	
<h1>Using Various Functions during Playback (Cont.)</h1> <h2>3) Playback Digital Effects</h2> <p>There are various modes available for adding special digital picture effects to your recordings during playback. They are identical to the Digital Effects 1 and 2 (p. 44, 45) that can be used during recording. You can use these functions only when the TBC Function is activated. Make sure that the [TBC] Indication is displayed.</p> <table><thead><tr><th>[EFFECT1]</th><th>[EFFECT2]</th></tr></thead><tbody><tr><td>① MOSAIC</td><td>⑦ NEGA</td></tr><tr><td>② STRETCH</td><td>⑧ SOLARI</td></tr><tr><td>③ MIRROR</td><td>⑨ SEPIA</td></tr><tr><td>④ STROBE</td><td>⑩ B/W</td></tr><tr><td>⑥ P IN P</td><td>⑪ D.FADE1</td></tr><tr><td></td><td>⑫ D.FADE2</td></tr><tr><td></td><td>⑬ D.FADE3</td></tr></tbody></table>	[EFFECT1]	[EFFECT2]	① MOSAIC	⑦ NEGA	② STRETCH	⑧ SOLARI	③ MIRROR	⑨ SEPIA	④ STROBE	⑩ B/W	⑥ P IN P	⑪ D.FADE1		⑫ D.FADE2		⑬ D.FADE3	<h1>1</h1> <p>Set the [CAMERA/OFF/VCR] Switch to [VCR] while pressing the Button ①. The [VCR] Lamp lights.</p> 	<h1>2</h1> <p>Press the [MENU] Button. The [VCR FUNCTIONS] Main-Menu appears.</p> 
[EFFECT1]	[EFFECT2]																	
① MOSAIC	⑦ NEGA																	
② STRETCH	⑧ SOLARI																	
③ MIRROR	⑨ SEPIA																	
④ STROBE	⑩ B/W																	
⑥ P IN P	⑪ D.FADE1																	
	⑫ D.FADE2																	
	⑬ D.FADE3																	
	<h1>5</h1> <p>Press the [SET] Button to select the desired digital effect.</p> 	<h1>6</h1> <p>Press the [MENU] Button to exit the menu.</p> 																

		Remarks, etc.
<p>3</p> <p>Turn the [▲▼] Dial to select [DIGITAL EFFECT] and then press the [SET] Button. The [DIGITAL EFFECT] Sub-Menu appears.</p> 	<p>4</p> <p>Turn the [▲▼] Dial to select [EFFECT1] or [EFFECT2]. The [D] Lamp lights.</p> 	<ul style="list-style-type: none"> • If you set the [CAMERA/OFF/VCR] Switch to [OFF] and then set it to [VCR] again, the indication of the selected digital effect flashes for a few seconds to inform you of the selected setting. • In the Picture-in-Picture Mode, it is not possible to use any of the Digital Fade Modes. • When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), the Picture-in-Picture Mode cannot be used.
<p>■ Cancelling the Digital Effect</p> <p>Set [EFFECT1] or [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p>		



Title

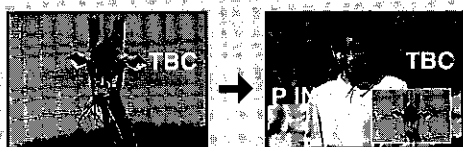
Using Various Functions during Playback (Cont.)

3) Playback Digital Effects

■ Picture-in-Picture function

This function lets you display a small still picture inside the normal picture.

The Playback Picture-in-Picture Function can be used only when the TBC Function is activated. Make sure that the [TBC] Indication is displayed.



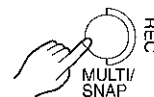
Procedure


1

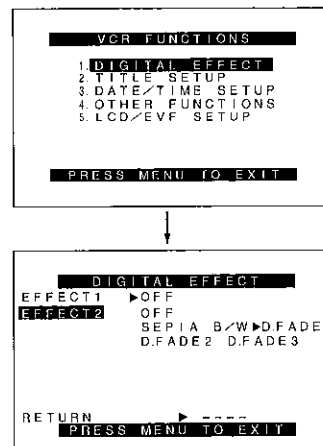
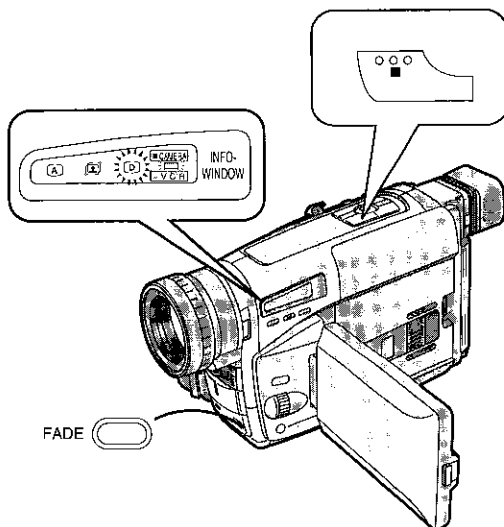
After setting [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [P IN P]... (p. 44)






During playback, press the [MULTI] Button at the scene that you want to capture as small still picture.

A small picture appears inside the normal picture.

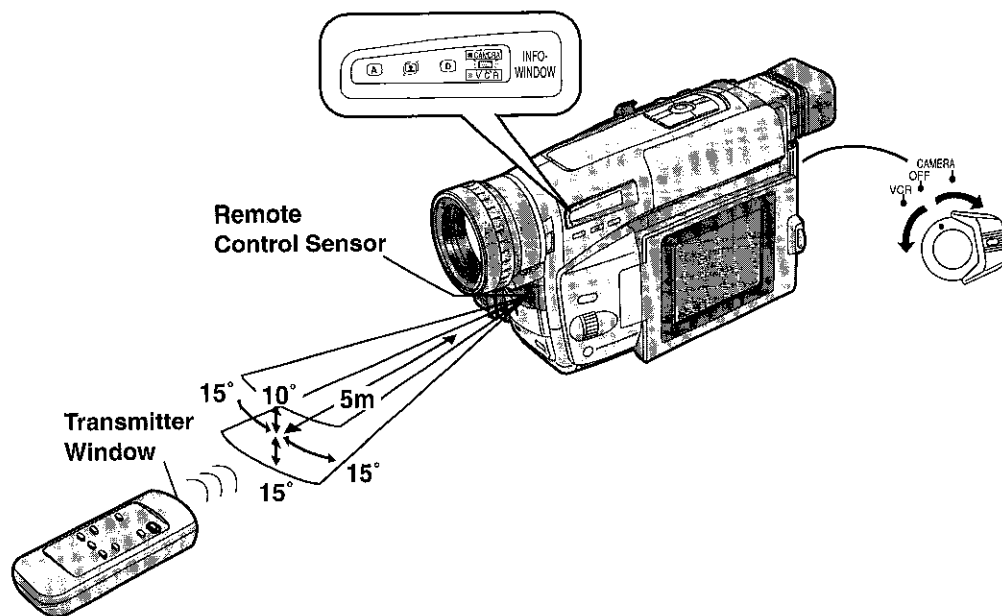


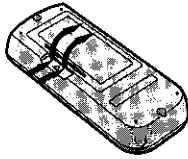
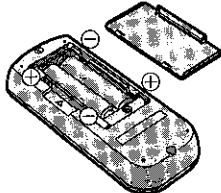
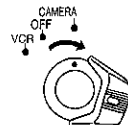
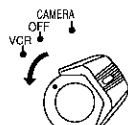
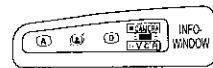
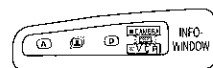
		Remarks, etc.
<p>■ Erasing the Small Picture</p> <p>Press the [MULTI] Button. If you press the [MULTI] Button again, another small picture is displayed.</p> 	<p>■ Cancelling the Picture-in-Picture Mode</p> <p>Set [EFFECT1] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p>	<ul style="list-style-type: none"> • If you press the [MULTI] Button during playback, slight picture noise may occur. • In the Picture-in-Picture Mode, it is not possible to use any of the Digital Fade Modes. • When the Movie Camera's Digital Still Picture Terminal is connected to a computer by using the Personal Computer Connection Kit (optional) (p. 80), the Picture-in-Picture Mode cannot be used.



Title	Procedure	Procedure
<p>Using Various Functions during Playback (Cont.)</p> <p>3) Playback Digital Effects</p> <p>■ Playback Digital Fade</p> <p>There are 3 Playback Digital Fade Modes available. They are the same as the Digital Fade Modes that can be used for recording (p. 56).</p> <p>The Playback Digital Fade Function can be used only when the TBC Function is activated. Make sure that the [TBC] Indication is displayed.</p> 	<p>1</p> <p>■ To Fade in: After setting [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to the desired Digital Fade Mode...(p. 70)</p> <p>During playback, keep the [FADE] Button pressed.</p> <p>The picture disappears gradually with the selected digital fade effect.</p>  <hr/> <p>1</p> <p>■ To Fade out: After setting [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to the desired Digital Fade Mode...(p. 70)</p> <p>During playback, press the [FADE] Button at the point where you want to fade out, and keep it pressed.</p> 	<p>2</p> <p>Approximately 3–4 seconds later, release the [FADE] Button.</p>  <hr/> <p>2</p> <p>After the picture has completely disappeared, press the [■] Button. Playback stops.</p> 

		Remarks, etc.
<div data-bbox="129 1314 177 1377" data-label="Text"> <p>3</p> </div> <div data-bbox="121 1402 354 1462" data-label="Text"> <p>Release the [FADE] Button.</p> </div> <div data-bbox="197 1662 336 1758" data-label="Image"> </div>	<div data-bbox="454 754 715 819" data-label="Section-Header"> <p>■ Cancelling Digital Fade Function</p> </div> <div data-bbox="451 828 729 920" data-label="Text"> <p>Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p> </div>	<div data-bbox="748 754 1342 819" data-label="List-Group"> <ul style="list-style-type: none"> ◆ It is not possible to use any of Digital Fade Functions together with the Picture-in-Picture Mode. </div>
	<div data-bbox="451 1314 708 1379" data-label="Section-Header"> <p>■ Cancelling Digital Fade Function</p> </div> <div data-bbox="448 1388 724 1480" data-label="Text"> <p>Set [EFFECT2] on the [DIGITAL EFFECT] Sub-Menu to [OFF].</p> </div>	



Title	Procedure	
<p>Remote Controller</p> <p>Using the wireless Remote Controller supplied with the Movie Camera allows operating most of the Movie Camera's major functions from a distance.</p> <p>■ Inserting the Batteries</p> <p>Insert the supplied batteries before using the Remote Controller.</p> <ul style="list-style-type: none"> • Do not mix old batteries with new batteries. • Do not mix different battery types, i.e. Alkaline and Manganese. • Do not use rechargeable (Ni-Cd) batteries. • Do not short-circuit the batteries. • When you do not use the remote controller for a long time, take out the batteries and store them in a cool dry place. 	<p>1</p> <p>Remove the Battery Cover.</p> 	<p>2</p> <p>Insert the batteries with the polarity (+ and -) correctly aligned.</p> 
<p>■ Using the Remote Controller</p>	<p>1</p> <p>Set the [CAMERA/OFF/VCR] Switch on the Movie Camera to [CAMERA] or [VCR].</p> <ul style="list-style-type: none"> • When the [CAMERA] Lamp lights, you can use the recording functions. • When the [VCR] Lamp lights, you can use the playback functions.    	

1 Zoom/Sound Volume Buttons [W/T]

CAMERA Mode: To zoom in and out. (p. 28)
VCR Mode: To adjust the volume of the playback sound. (p. 31)

2 Rewind/Review Button [◀◀]

To start review playback (p. 32) if pressed during normal playback; and to rewind the tape if pressed in the Stop Mode. Pressing it for more than 3 seconds in the Stop Mode rewinds the tape at high speed. (p. 31)

Also to activate the Camera Search Function (p. 24) in reverse direction if kept pressed in the Recording Pause Mode. Pressing it briefly activates the Recording Check Function (p. 24).

3 Stop Button [■]

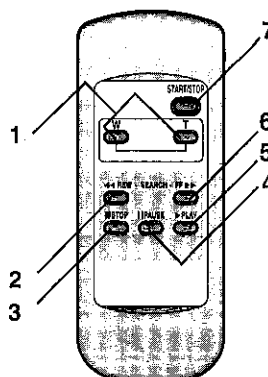
To stop the tape. (p. 30)

4 Pause Button [II]

To pause playback. (p. 32) The playback picture stands still.

5 Playback Button [▶]

To start playback. (p. 30)



6 Fast-forward/Cue Button [▶▶]

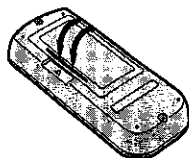
To start cue playback (p. 32) if pressed during normal playback; and to fast-forward the tape if pressed in the Stop Mode. Also to activate the Camera Search Function (p. 24).

7 Recording Start/Stop Button [START/STOP]

To start and pause recording. (p. 22)

3

Replace the Battery Cover.



Replacing the Batteries

The life of the batteries is about 1 year. When the batteries are exhausted, purchase two new "AAA", "UM-4" or "R03" type batteries and insert them in the same way as explained.

Remarks, etc.

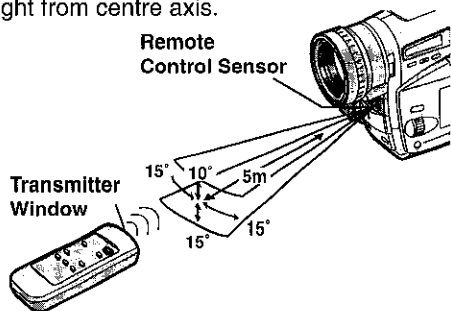
■ CAUTION

Danger of explosion if batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

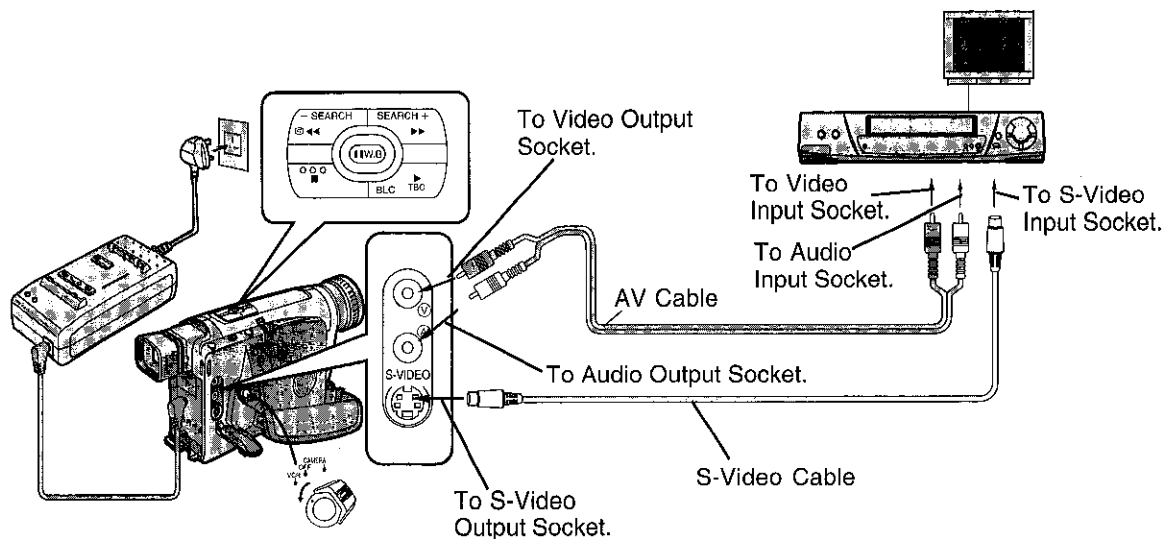
2

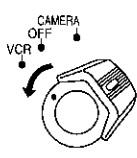
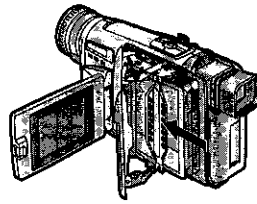
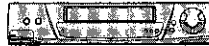
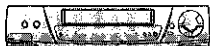
Aim the Remote Controller at the Remote Control Sensor on the Movie Camera and press the appropriate button.

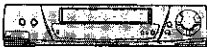
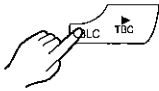
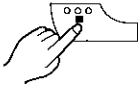
Distance to the Movie Camera: Less than 5 metres.
Angle: Approximately 10° up, and 15° down, left and right from centre axis.

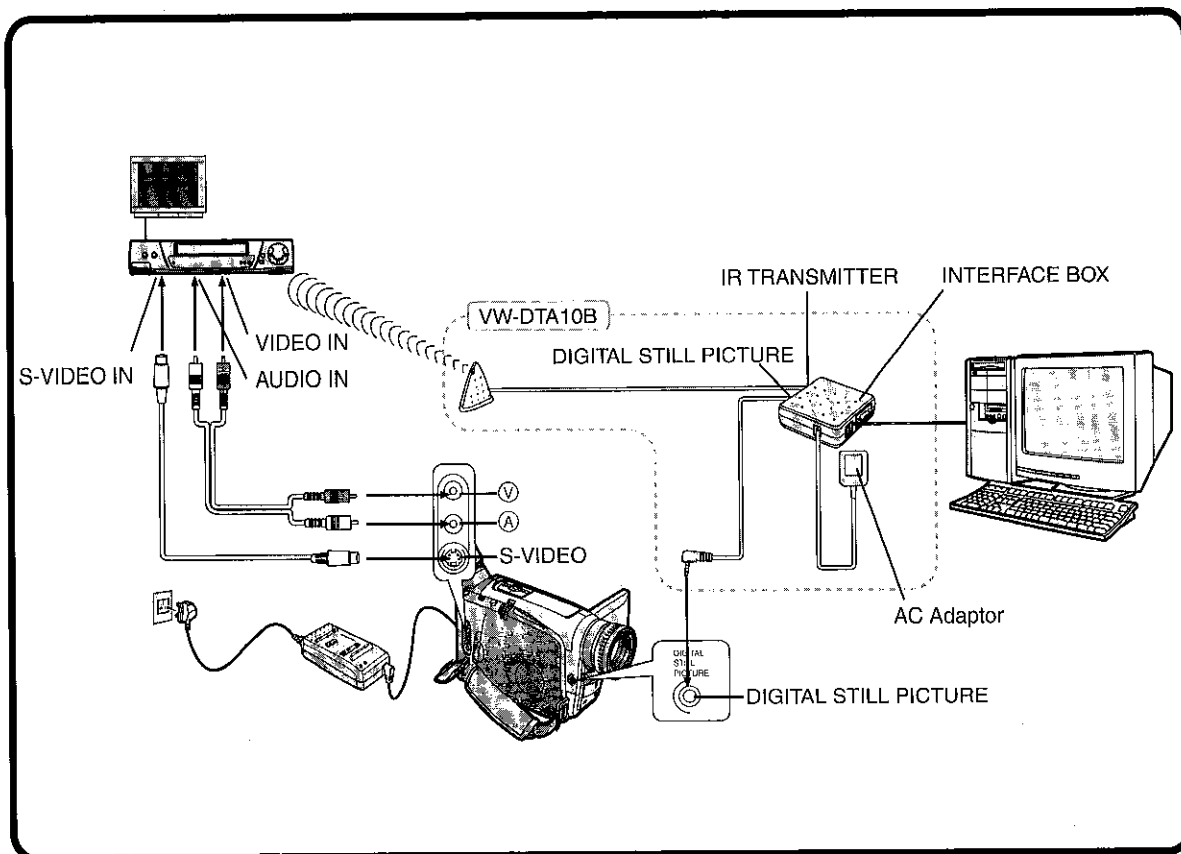


- The operative range described on the left is valid for using the Remote Controller indoors. When using it outdoors or under strong lights, it may not work correctly even within the left range.
- Within a distance of about 1 metre, it is also possible to use the Remote Controller from the side (LCD Monitor side).
- Do not cover the Transmitter Window on the Remote Controller with your hand, etc.
- The zoom speed cannot be changed from the Remote Controller. To prevent inadvertent operation by other infrared remote controllers, the Movie Camera needs to receive each command signal three times. For this reason, there is a slight delay between pressing the [W] or [T] Button on the Remote Controller and the actual operation of the zoom function on the Movie Camera.



Title	Procedure	
<p>Copying onto an S-VHS (or VHS) Cassette (Dubbing)</p> <p>By connecting the AV Cable, you can copy the cassette recorded with this Movie Camera onto a VCR.</p>	<p>1</p> <p>Movie Camera: Set the [CAMERA/OFF/VCR] Switch to [VCR].</p> 	<p>2</p> <p>Movie Camera: Insert the recorded cassette.</p> 
	<p>5</p> <p>VCR: Start recording.</p> 	<p>6</p> <p>VCR: Press the Pause or Stop Button to stop recording.</p> 

		Remarks, etc.
<p>3 VCR: Insert an unrecorded cassette with intact erasure prevention tab.</p> <ul style="list-style-type: none"> As some settings (external input, tape speed, etc.) on the VCR are necessary, please refer to your VCR's operating instructions. 	<p>4 Movie Camera: Press the [▶] Button to start playback.</p> 	<ul style="list-style-type: none"> Also read the Operating Instructions of the VCR. If your VCR is equipped with an S-Video Socket, also connect the S-Video Cable. If your VCR is not equipped with AV Input Sockets, the 21-pin Adaptor (purchase separately) is necessary. Consult your dealer. The picture quality deteriorates slightly in the dubbing process, however, this can be minimized by selecting the standard recording speed (SP Mode) on the VCR. For all additional scenes that you want to dub, follow steps 4 to 7.
<p>7 Movie Camera: Press the [■] Button to stop playback.</p> 		



The Personal Computer Connection Kit VW-DTA9E (optional), or VW-DTA10B (optional) makes it possible to connect the Movie Camera to a computer and transmit still video images to it. **The above illustration shows the connections in case of using the VW-DTA10B. For the VW-DTA9E, refer to its operating instructions.**

Computer System Requirements (VW-DTA10B)

DV STUDIO2 can be installed in a PC/AT compatible personal computer which can run Microsoft® Windows® 95/98.

Compatible machines:

Personal computer with 80486DX4 or higher CPU (Pentium™ or higher recommended)

Graphic card:

True Color (approx. 16.7 million colours) recommended (operation also possible even with 256 colours)

Installed memory: 16 MB or more
(32 MB or more recommended)

Free hard disk space: At least 16 MB

Disk drive: CD-ROM drive

Ports: RS-232C (D-sub 9pin) or USB

Other requirements: Mouse

To connect the Movie Camera to the computer, use the Interface Box contained in the Personal Computer Connection Kit.

- To use the DV STUDIO2 software via USB, a computer with Windows® 98 preinstalled is necessary.
- Pictures that you intend to import into computer applications should be recorded in the SP Mode.
- For detailed explanations on the operating environment, connections and operations, refer to the Personal Computer Connection Kit's operating instructions.
- Windows® is a trademark of Microsoft Corporation U.S.A.
- All other company and product names in the operating instructions are trademarks of their respective corporations.

For Those Who Use the Personal Computer Connection Kit (VW-DTA10B)

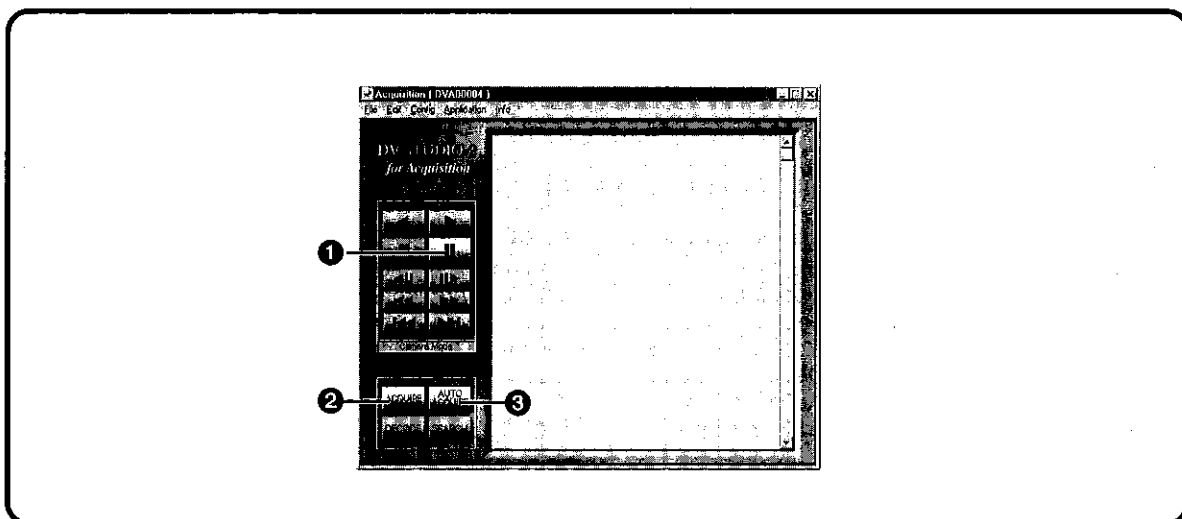
With the Personal Computer Connection Kit (VW-DTA10B; optional), you can perform the following operations:

- Importing still pictures into the computer when the Movie Camera is in the VCR Mode
- Importing still pictures into the computer when the Movie Camera is in the Camera Mode
- Easy editing

In these Operating Instructions, only the operations for importing still pictures into the computer with the Movie Camera in the Camera Mode are explained. For the other functions, refer to the operating instructions of the Personal Computer Connection Kit (VW-DTA10B).

Follow the operation steps explained on page 82 after making all necessary connections and installing the software of the Personal Computer Connection Kit on the computer.

- When the Movie Camera is in the Camera Mode, it is not possible to perform Easy Editing by using [DV STUDIO 2 for Editing].
- Communications may sometimes be interrupted by the operations of the OS or other software that is running simultaneously. If this should happen, reconnect after the other operation is complete.



Options/Editing

■ Parts and their functions (Camera Mode)

When the movie camera is in Camera Mode, only the buttons that can actually be used are active.

- The functions of the following on-screen buttons are different from those of the same buttons on the Movie Camera.

① Still [II]

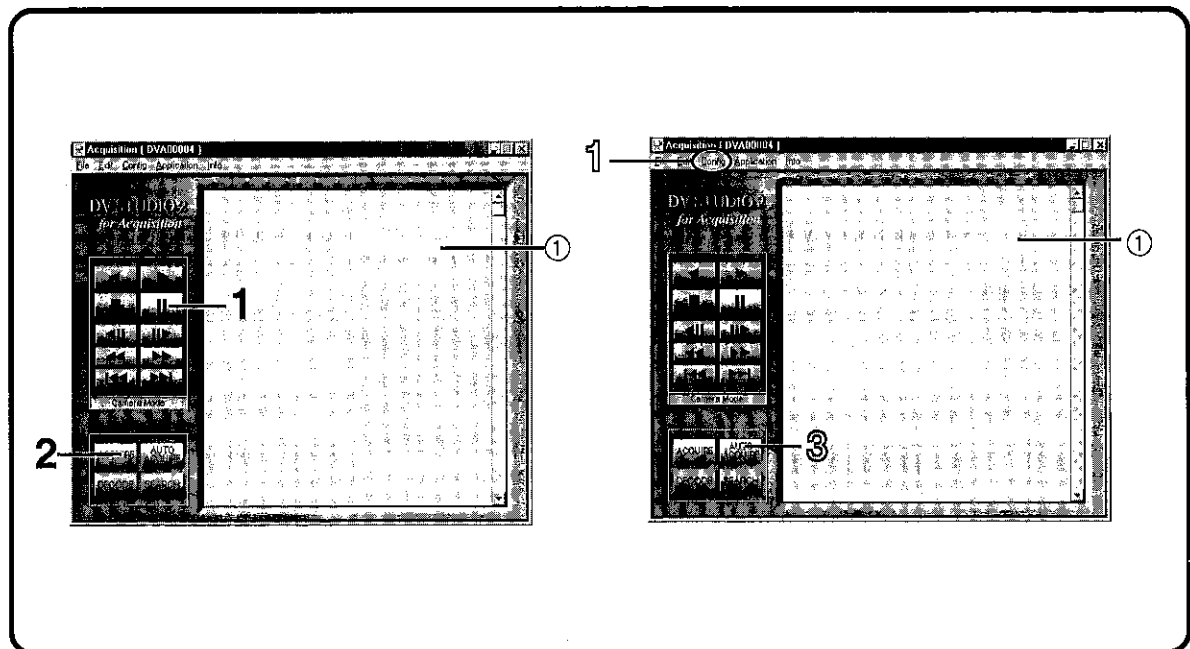
The button is used to capture camera video as a still picture, or to release a still picture.

② Acquire [AQUIRE]

Click this button to acquire the scene that you see through the lens as a still picture.

③ Auto acquire [AUTO AQUIRE]

The scene is automatically acquired as still pictures.



Acquiring digital still pictures in Camera Mode to create a DV album

Use the procedure described below to acquire a digital still picture through the camera lens. Connect your Movie Camera and personal computer. Next, set the Movie Camera to Camera Mode and open the application.

- In this mode, operate the Movie Camera without a cassette inserted. Otherwise it automatically switches off to protect the tape and to conserve battery power.
- In this mode, turn off the Movie Camera's Demonstration Mode.
- The functions of the following on-screen buttons are different from those of the same buttons on the Movie Camera.

1 Point the Movie Camera at the desired object and click [■].

The picture is captured as a still picture.

- If you don't like the picture, you can cancel it by clicking the same button again.

2 Click [ACQUIRE].

Picture acquisition now starts. When acquisition is completed, the acquired picture appears on the picture display ①.

- To capture and acquire another picture, click [■] and then repeat steps 1 and 2.
- To cancel an acquisition, click [Cancel].

- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO 2 end.
- As the acquired picture is compressed in the JPEG format, its picture quality is slightly inferior to that of the original picture.

Automatically acquiring digital still pictures in Camera Mode to create a DV album

Use the procedure described below to automatically acquire a digital still picture through the camera lens. Connect your Movie Camera and personal computer. Next, set the Movie Camera to Camera Mode and open the application.

1 Select the acquisition method under [Auto Acquire Settings] in [Config].

Select the acquisition interval under "Interval Time". The Interval times are subject to slight imprecisions.

2 Point the Movie Camera at the desired object.

3 Click [AUTO ACQUIRE].

Picture acquisition now starts. Still pictures are acquired at the selected time intervals, and the acquired pictures appear in sequence on the picture display ①.

- To stop auto acquire, click [Cancel].

- Due to the possibility of an incorrect operation, do not operate the Movie Camera directly when the acquire button has been operated at the DV STUDIO 2 end.
- As the acquired picture is compressed in the JPEG format, its picture quality is slightly inferior to that of the original picture.

Notes about Use of the Personal Computer Connection Kit (VW-DTA10B) with this Movie Camera

■ When Using the [DV STUDIO 2 for Acquisition] Application

- From this Movie Camera, the still pictures are acquired in the JPEG format, and all acquired pictures are marked with a blue acquisition format mark.
- Before acquiring a picture, be sure to click [III] to make the picture stand still. Otherwise, the picture may not be acquired correctly.
- When you have installed the software and want to perform automatic acquisition for the first time with the Movie Camera in the VCR Mode, first open the [Auto Acquire Settings] dialogue box in the [Config] menu, check the settings and click [OK]. Otherwise the pictures may not be acquired correctly.
- If you click [III] while using one of the Digital Fade Functions, the picture stands still but the fading continues. (p. 56, 74)
- It is not possible to acquire a still picture during recording (including Snapshot Recording).
- Immediately after the start of playback, it may not be possible to acquire a still picture correctly.
- If you want to acquire a still picture with the Movie Camera in the VCR Mode, turn the TBC Function on. (p. 69)
- Still pictures cannot be acquired correctly in the Cue or Review Playback Mode. (p. 32)

The following functions cannot be used:

- Reverse playback [◀]
- Reverse still advance [◀III]
- Still advance [III▶]
- Reverse photo search [◀◀◀]
- Forward photo search [▶▶▶]
- Automatic acquiring of Photoshot pictures
- [Acquire Format] options (automatically set to JPEG acquisition)
- [Print on Video Printer] in the [File] menu.
- [Cut Black Side Bars] in the [Config] menu.
- [Still Picture Filter] in the [Config] menu.
- [Search Picture] in the Context Menu.
- [Print on Video Printer] in the Context Menu.

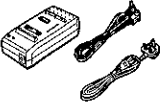


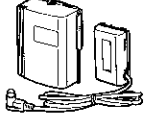
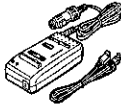




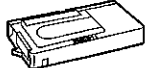
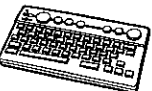

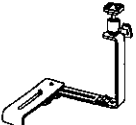
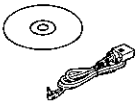
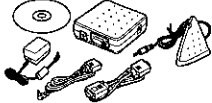
■ When Using the [DV STUDIO 2 for Editing] Application

- Before starting to edit, always rewind the tape to its beginning and reset the Tape Counter to zero. Do not reset the counter during editing, as this would change all already selected edit In points and Out points. Also, do not eject the cassette during editing, as this would automatically reset the Tape Counter to zero.
- The time counter shows the elapsed tape time in real time. (However, as the indicated times are not fixed addresses, slight deviations may occur.)
- As the time counter indicates the elapsed tape time in hours, minutes, seconds and frames, it allows detailed editing.

The following functions cannot be used:

- Reverse playback [◀]
- Reverse still advance [◀III]
- Thumbnail pictures for the programmed edit-IN points

Optional Accessories

AC Adaptor VW-AS7B 	Battery Pack CGR-V610 	Battery Pack CGR-V620 	Battery Pack CGR-V816 	Car Battery Charger VW-KBC7E 
Filter Kit VW-LF43WE 	Tele Conversion Lens VW-LT4314WE 	Wide Conversion Lens VW-LW4307WE 	Tripod VZ-CT55E 	Cassette Adaptor VW-TCA7E 
Video Titler VW-VT1B 	IR/Video DC Light VZ-LDR10E (Halogen&Infra- red) 	Shoe Adaptor VW-SK11E 	Personal Computer Connection Kit VW-DTA9E 	Personal Computer Connection Kit VW-DTA10B 

Notes:

- Consult your dealer for details of other accessories not listed here.
- Some accessories are not available in some countries.

IR/Video DC Light (VZ-LDR10E)

It requires the Shoe Adaptor (VW-SK11E) for attaching to the Movie Camera.

Charging Time and Maximum Time for Continuous Recording

Battery No.	Charging Time for a Full Charge	Max. Continuous Recording Time	Max. Continuous Recording Time for Approx. 30-Minute Charging
CGR-V610 (supplied)	• 1 h 20 min.	• 2 h. (1 h 20 min.)	• 50 min. (35 min.)
CGR-V620	• 2 h 25 min.	• 4 h 10min. (2 h 45 min.)	• 50 min. (35 min.)
CGR-V816	• 5 h 10 min.	• 8 h 20min. (5 h 30 min.)	• 50 min. (35 min.)

(The times shown in the above chart are approximations. The figures in parentheses show the recording time when using the LCD Monitor.)

Cautions for Use

Take care that no water enters the Movie Camera when using it in the rain and snow or on the beach.

- The Movie Camera and the cassette could become damaged. (It might not be repairable.)
- If seawater has accidentally splashed on the Movie Camera, moisten a soft cloth with tap water, wring it well and wipe the camera body carefully with it. Then thoroughly wipe it with a soft, dry cloth.

Keep the Movie Camera away from magnetized equipment (TVs, video games, etc.).

- If you use the Movie Camera on or near a TV, the electromagnetic radiation may cause picture and sound distortion.
- Strong magnetic fields generated by speakers and large motors may damage the recordings on the tape and distort the picture.
- The electromagnetic radiation from micro-processors can adversely influence the Movie Camera and cause picture and sound distortion.
- If the Movie Camera is adversely influenced by magnetized equipment and does not work correctly, turn the Movie Camera off, remove the Battery or disconnect the AC Adaptor and attach the Battery or connect the AC Adaptor again. Then turn the Movie Camera on.

Do not use the Movie Camera near a radio transmitter or high-voltage power line.

- If you record near a radio transmitter or high-voltage power line, the recorded picture and sound may be adversely influenced.

Do not use the Movie Camera for surveillance and other industrial application.

- If the Movie Camera is being used for a long time, the inside temperature could rise excessively and this may cause malfunction.
- This Movie Camera is not designed for industrial use.

Take care that no sand and fine dust enters the Movie Camera when using it on a beach or similar places.

- Sand and dust could damage the Movie Camera and cassette. (Be careful when inserting and removing the cassette.)

Do not spray insecticide or volatile agents on the Movie Camera.

- Such agents could deform the body and cause the surface coating to peel off.
- Do not leave the Movie Camera in direct contact with rubber or plastic products for a long time.

Do not use benzine or thinner for cleaning.

- They could deform the body and cause the surface coating to peel off.
- Before cleaning, remove the Battery or unplug the AC Mains Lead from the AC mains socket.
- Wipe the Movie Camera with a soft, clean cloth. To remove persistent stains, wipe with a cloth moistened with mild detergent diluted with water, and then finish with a dry cloth.

After use, always take out the cassette and remove the Battery or unplug the AC Mains Lead from the AC mains socket.

- If you leave the cassette in the Movie Camera, the tape can become loosened and damaged.
- If you leave the battery attached to the Movie Camera for a long time, the voltage level may drop very low so that the Battery cannot be used any more even after charging.

Notes about the AC Adaptor

- If the temperature of the Battery is extremely high or extremely low, the [CHARGE] Lamp may keep on flashing and charging is not possible. After the Battery has cooled down or warmed up sufficiently, charging starts automatically. However, if the [CHARGE] Lamp continues to flash after the Battery has cooled down or warmed up sufficiently, some malfunction may have occurred in the Battery or in the AC Adaptor. In this case, consult with your dealer.
- When the battery is warm, charging takes longer than usual.
- When you use the AC Adaptor near a radio, the radio reception may be distorted. Keep the AC Adaptor more than 1 metre away from the radio.
- When the AC Adaptor is in use, it may emit a whirring sound. However, this is normal.
- After use, be sure to disconnect the AC Mains Lead from the AC mains socket. (If you leave it connected, a small amount of electricity is consumed.)
- Always keep the terminals of the AC Adaptor and the battery clean.
- Do not handle with wet hands.


Cautions for Use (cont.)

■ Condensation

If Condensation Has Formed Inside the Movie Camera, Recording is Not Possible.

Symptoms of Condensation

If the following symptoms occur, condensation has formed inside the Movie Camera.

- ① The Condensation Indication “U10/[

Remedy**

- ①** Wait a few hours before operating the Movie Camera again.
(The actual time depends on the surrounding conditions.)
- ②** Turn on the Movie Camera.
- ③** Confirm that the Condensation Indication is not displayed any more.
- ④** For added safety, wait about 1 more hour.

Remarks about Condensation

- Condensation can form if the Movie Camera is suddenly brought from cold surroundings to a place where it is hot or humid.
- Since condensation forms gradually, there may already be some condensation inside the Movie Camera even before the Condensation Indication begins to flash.
- In an extremely cold place, condensation may freeze and turn into frost. As the Movie Camera cannot detect frost, the Condensation Indication does not appear until the frost melts.

Precautions against Condensation

When moving it from a very cold place to a very warm place, keep it in a tightly closed plastic bag or similar to prevent condensation from forming.

■ Cautions for Transport

- When not actually recording, carry the Movie Camera in a specially designed Carrying Case.
- Keep the packing materials. When transporting the Movie Camera in the future, pack it in the same way as it was when you purchased it.

■ Optimum Use of the Battery

Special Characteristics of the Battery

This Battery is a rechargeable lithium-ion battery. Its ability to generate electric energy is based on an internal chemical reaction. This reaction is easily influenced by ambient temperature and humidity, and the useful operation time that the Battery can provide becomes shorter at high and low temperatures. When used in extremely cold surroundings, the Battery may only be able to provide approximately 5 minutes of operation time. If the Battery becomes extremely hot, a protection function is activated and prevents the use of the Battery for some time.

After Use, Always Remove the Battery.

Be sure to remove the Battery from the Movie Camera. (If it is attached to the Movie Camera, a small amount of electric current is consumed even if the Movie Camera is turned off.) Leaving the Battery attached to the Movie Camera for a very long time could cause it to become excessively discharged, so that it cannot be used any more even after charging.

Discarding a Battery That Has Become Unusable

- The usable life of the Battery is limited.
- Do not throw the Battery in a fire because it could explode.

Keep the Battery's Terminals Clean.

Be careful that the terminals do not get plugged up with dust, dirt or other substances.

If you accidentally drop the Battery, confirm that the Battery itself and the terminals are not deformed. Attaching a deformed Battery to the Movie Camera or to the AC Adaptor could damage the Movie Camera or the AC Adaptor.

■ Precautions for Storage

Before Storing the Movie Camera, Take out the Cassette and Remove the Battery.

Store all equipment in a dry place where the temperature remains relatively constant. (Recommended temperature is 15°C–25°C and recommended relative humidity is 40%–60%.)

Movie Camera

- Wrap it with a soft cloth to prevent dust from entering.
- Never leave the Movie Camera in place with high temperature.

Battery

- Extremely low or high temperature shortens the Battery life.
- Storing it in places with oily smoke and a lot of dust could cause the terminals to get rusty, and this can result in a malfunction.
- **Do not allow metal objects (such as necklaces and hair pins) to touch the battery terminals. Short-circuiting may occur and generate heat, and touching it in this condition could inflict serious burns.**
- Store the Battery in discharged condition. If you store the Battery for a long time, we recommend that you charge it once a year and completely use up the charge before storing it again in discharged condition.

Cassette

- Rewind the tape to its beginning before storing. Leaving the cassette with the tape stopped halfway for more than 6 months (depending on the storing condition) loosens the tape. Be sure to rewind it to the beginning.
- Put the cassette in its case to store it. Dust, direct sunlight (ultraviolet rays) and humidity could damage the tape. Dust contains hard mineral particles and cassettes with dust damage the video heads and other parts of the Movie Camera. Make it a habit to always put the cassette back into its case.
- Completely wind the tape forward and then rewind it once every half year. Leaving the cassette for more than a year without winding/rewinding it may deform the cassette because of stretching and shrinking of the tape due to changes in temperature and humidity. Also, the tape may stick together.
- Do not place the cassette near strongly magnetized objects or equipment.
- The tape surface is coated with microscopic magnetic particles and they record signals. Such objects as magnetic necklaces and toys have stronger magnetic force than commonly thought, and this could erase the recorded contents and cause noise in picture and sound.

Glossary

■ Other Useful Information

LCD Monitor

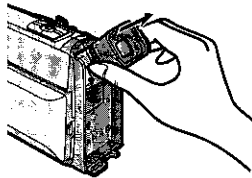
- In places where big changes in temperature occur, condensation may form on the LCD Monitor. Wipe it with a soft, dry cloth.
- Extremely high precision technology is employed in producing the LCD Monitor. The result is more than 99.99 % effective pixels with a mere 0.01 % of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.
- When the Movie Camera is very cold when turning it on, the picture on the LCD Monitor is darker than normally. However, as it reaches normal temperature, it regains its normal brightness.
- To remove fingerprints, wipe the LCD Monitor with the supplied Cleaning Tissue or a similar soft cloth.
- Do not expose the LCD Monitor to direct sunlight. When sunlight falls onto the LCD Monitor, it may be difficult to view the picture.
- Do not apply any pressure to the surface of the LCD Monitor or subject it to strong shocks.
- Before transporting the Movie Camera, securely close the LCD Monitor.

Viewfinder

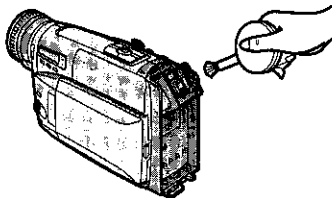
- Do not leave the Viewfinder or the Lens aimed at the sun. This could seriously damage internal parts.

Cleaning the Viewfinder

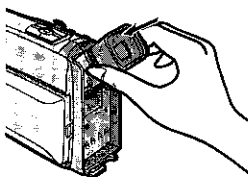
- 1** Push the Buttons on both sides of the Viewfinder and remove it in the direction of the arrow.



- 2** Remove dust with a blower brush (not supplied).
If you use a cotton swab or similar to clean the inside of the Viewfinder, use it very carefully to prevent scratching the screen inside the Viewfinder.

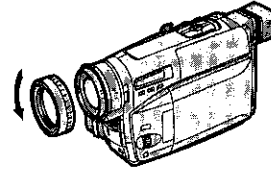


- 3** To re-attach the Viewfinder, push it forward onto the Viewfinder Tube until it locks with a click.



Lens Hood

- When you want to attach the Tele Conversion Lens (VW-LT4314WE, optional), the Wide Conversion Lens (VW-LW4307WE, optional) or a filter of the Filter Kit (VW-LF43WE, optional), be sure to first remove the Lens Hood by turning it counterclockwise. If you attach a filter of the Filter Kit, you can attach the Lens Hood onto it.

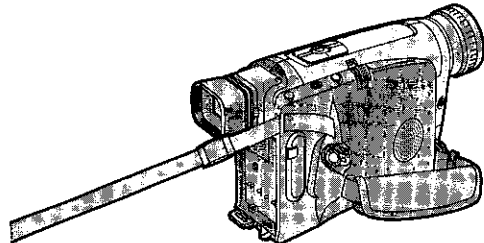


- During recording with a filter or conversions lens attached, the four corners of the picture may become dark (vignetting effect), when you push the [W/T] Zoom Lever toward [W]. For details, please also read the operating instructions of the accessory being used.

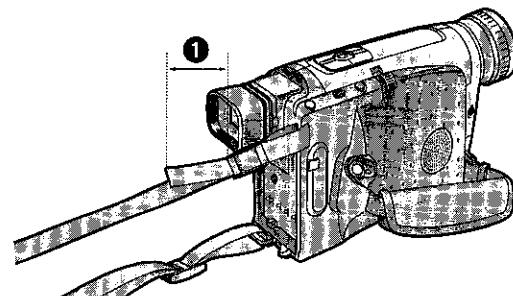
Attaching the Shoulder Strap

Before you go recording outside, we recommend that you attach the Shoulder Strap to prevent the Movie Camera from dropping accidentally.

- 1** Pull the end of the Shoulder Strap through the Shoulder Strap Holder on the Movie Camera.



- 2** Fold the end of the Shoulder Strap back and pull it through the Shoulder Strap Length Adjuster so that it stands out more than 2 cm ① to prevent it from slipping off.



■ Focus

If you look at an object through a magnifying glass and move it closer or further away from your eye, you will reach a point where the object becomes clearly visible. Being focused or in focus means that the subject can be seen with optimum clarity and sharpness.

Human Eyes

Human eyes have lenses as well, and when we look at objects at different distances, the shape of these lenses changes automatically so that we can always see these objects clearly.

Movie Camera

The image of the subject enters the Movie Camera through the lens and is converted into an electric signal (video signal) for recording onto magnetic tape. The focus is adjusted either manually or automatically by moving a focusing lens.

Auto Focus Adjustment

The Auto Focus System automatically moves the internal focusing lens forward or backward and adjusts the focus so that the subject can be seen clearly.

The Auto Focus Adjustment has the following characteristics:

- It adjusts until the vertical contours of the subject are as sharp and clean as possible.
- It adjusts the focus on the subjects with strong contrast.
- It adjusts the focus on the subject in the centre of the LCD monitor or Viewfinder.

Unlike human eyes, the lens of the Movie Camera cannot instantaneously change the focus from a nearby to a distant subject and vice versa.

For the following subjects and recording situations, the Auto Focus system cannot provide precise adjustment. Use the Manual Focus Mode instead. (p. 26)

① Recording subjects with a part of it near the Movie Camera and another part far away from it

As the Auto Focus adjusts on the centre part of the image, it is often impossible to bring the nearby and distant parts of the subject into focus.

When you want to record a person with a distant mountain in the back, it is not possible to focus on both.

② Recording subjects behind glass covered with dirt or dust

As the focus is adjusted on the dirty glass, the subject behind the glass is out of focus. When recording a subject across a street on which cars are running, the focus may be adjusted on the cars.

③ Recording subjects in dark surroundings

As the amount of light information entering through the lens is greatly reduced, the Movie Camera cannot adjust the focus precisely.

④ Recording subjects surrounded by objects with shiny surfaces or much light reflection

As the Movie Camera adjusts the focus on objects with shiny surfaces or much light reflection, the subject may go out of focus. Therefore, when recording at a lake or the sea, evening scenes, fireworks, or under special types of lighting, the subject may be out of focus.

⑤ Recording fast-moving subjects

As the internal focusing lens is moved mechanically, it cannot follow fast-moving subjects without delay. Therefore, subjects like children running back and forth may temporarily go out of focus.

⑥ Subjects with weak contrast

As the Movie Camera adjusts the focus based on vertical contours in the picture, subjects with little contrast such as a white wall may be out of focus.

Glossary (cont.)

■ White Balance Adjustment

While most recording with a Movie Camera is probably done outdoors under sunlight, video recording is also done very often under artificial light sources, both indoors and outdoors. However, each of these light sources gives the subject slightly different colours.

Human Eyes

Human eyes can easily adjust to different kinds of lighting and see an object with the same colours even under different lighting.

Movie Camera

Unlike human eyes, the Movie Camera does not have the innate ability to adapt to changes in lighting, and they influence the colours being recorded. Therefore, depending on the light source, the picture would be recorded with a bluish or reddish tint. To minimise the influence of the lighting on the colours of the subject, an adjustment called White Balance Adjustment is necessary.

White Balance Adjustment

The White Balance Adjustment determines the colour of the light and adjusts the colours so that white remains pure white. As white is the basic colour of the entire colour spectrum, if white is reproduced correctly, the other colours are correct and natural, too.

Auto White Balance Adjustment

This Movie Camera stores the optimum settings for several common light sources in memory. The Movie Camera judges the recording situation by determining the tint of the light received through the lens and by the White Balance Sensor (p. 4), and it selects the setting for the most similar tint. This function is called Auto White Balance Adjustment.

However, as the white balance settings for only a few light sources are stored in memory, the white balance is not correctly adjusted for other lighting conditions.

For the range of different types of lighting within which the Auto White Balance Function can provide precise adjustment, refer to the chart. For recording under lighting conditions outside this range, the Auto White Balance Function does not work correctly, and the recorded picture has a red or blue cast. However, the same also applies, if the subject is lit by more than one light source, even if these light sources are within this range.

■ Colour Temperature

Every light source has its own colour temperature measured in Kelvin (K). The higher the Kelvin value, the more bluish the light; the lower the value, the more reddish the light. The Kelvin value is related to the tint of the light, but not directly to its brightness.

The range ① indicated in the illustration below shows the light sources for which this Movie Camera can provide precise white balance adjustment and, therefore, natural colours in the recorded pictures, when using the Full Auto Mode. For light sources outside this range, adjust the white balance manually (p. 62). Also, additional lighting may be necessary.

① Control range of this Movie Camera's Auto White Balance Adjustment Mode

② Blue Sky

③ Cloudy sky (Rain)

④ TV screen

⑤ Sunlight

⑥ White fluorescent lamp

⑦ 2 hours after sunrise or before sunset

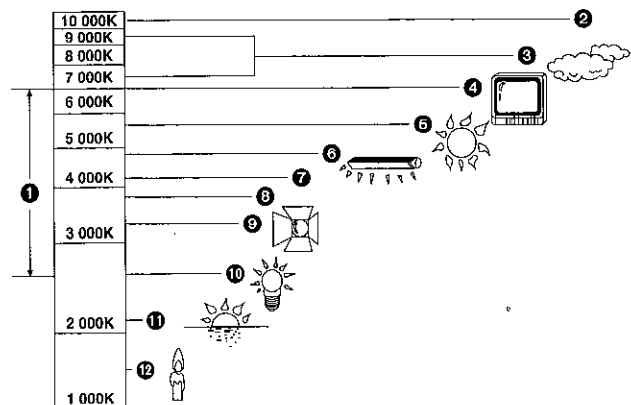
⑧ 1 hour after sunrise or before sunset

⑨ Halogen light bulb

⑩ Incandescent light bulb

⑪ Sunrise or sunset

⑫ Candlelight



■ Counter Reset Function

Before starting to record or play back to reset the Elapsed Tape Time Indication to [0:00.00].

1 Set [C.RESET] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [YES].

- When recording or playback starts, the elapsed tape time is indicated in hours, minutes and seconds. During playback of parts of the tape on which no recording has been made, this indication does not change.
- If you rewind the tape further than the tape counter position [0:00.00], the minus sign [-] appears in front of the Tape Counter Indication.
- The Tape Counter Indication is automatically reset to [0:00.00] when you take out the cassette, remove the Battery or use the High-Speed Rewinding Function.

■ Memory Stop Function

The Memory Stop Function is convenient for the following operations.

Rewinding or fast-forwarding the tape to a desired position

- 1** Reset the Tape Counter to zero at the tape position from which you want to play back later.
- 2** Set [DISPLAY] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu to [MEMORY].
- 3** Start playback or recording.
- 4** After playback or recording is finished: Set the [CAMERA/OFF/VCR] Switch to [VCR].
- 5** Rewind the tape.
The tape automatically stops approximately at the position at which you reset the counter to zero.

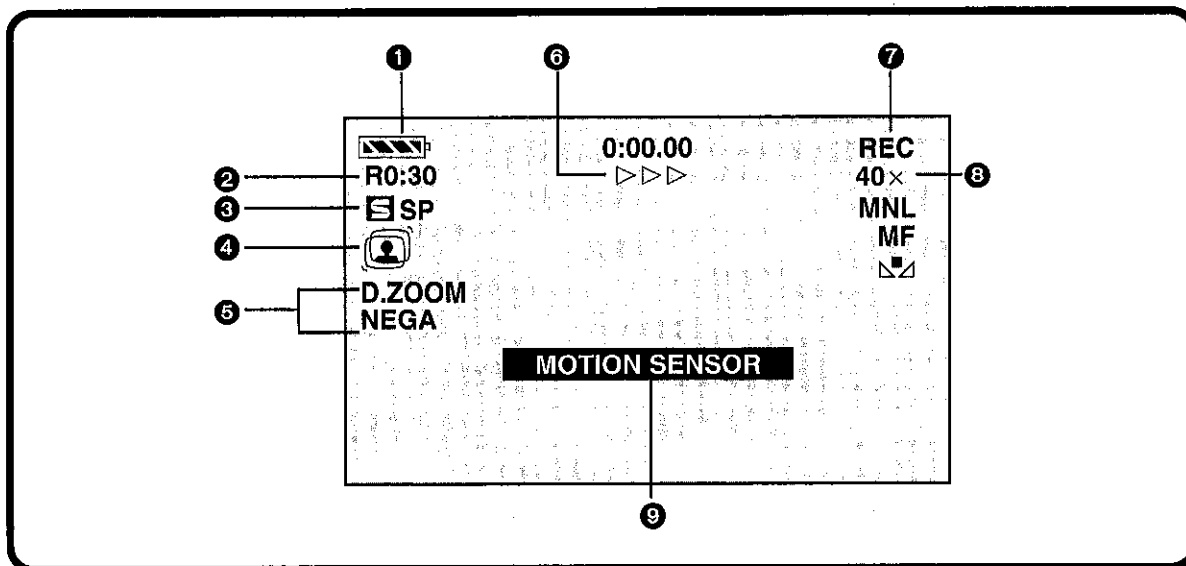
- During High-Speed Rewinding, the Tape Counter shows [0:00.00]. However, this does not activate the Memory Stop Function.

■ Demonstration Mode






When the Movie Camera is turned on and in the Camera Mode without any cassette inserted, and you leave it for 10 minutes without activating any function, it automatically switches over to the Demonstration Mode which demonstrates its many functions.

- You can also start the Demonstration Mode by setting [DEMO MODE] on the [OTHER FUNCTIONS] Sub-Menu of the [CAMERA FUNCTIONS] Main-Menu to [ON] and then exiting the menu.
- Pressing a button or displaying a menu temporarily suspends the Demonstration Mode. However, if you leave the Movie Camera in this condition without activating any function for more than approximately 10 minutes, the Demonstration Mode resumes.
- If you do not want the Demonstration Mode to be activated, set [DEMO MODE] on the menu to [OFF].
- If you set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the [▶] Button, [DEMO MODE] on the menu is automatically set to [ON] and the Demonstration Mode starts immediately.
- If you set the [CAMERA/OFF/VCR] Switch to [CAMERA] while pressing the [■] Button, [DEMO MODE] is automatically set to [OFF].

Indications on the LCD Monitor/in the Viewfinder



1 Remaining Battery Power

As the remaining battery power decreases, the indication changes as follows:
 →  →  → . When the battery is completely discharged, the  indication flashes.

2 Remaining Tape Time (p. 19)

The remaining tape time is displayed in minutes. (When it becomes less than 2 minutes, the indication starts to flash.)

- The displayed remaining tape time may be shorter than the actual remaining tape time.

Tape Length (p. 19)

The Tape Length Indication should be matched to the tape length of the inserted cassette (EC30, EC45 or EC60) to ensure correct indication of the remaining tape time.

3 Recording Speed Mode (p. 15)

The selected Recording Speed Mode is displayed.


SP: Standard-play Mode

LP: Long-play Mode

Recording Format (p. 15)


The selected Recording Format Mode is displayed.

No Indication: Recording was performed in the VHS format.

: Recording was performed in the S-VHS format.

S-VHS ET: Recording was performed in the S-VHS ET format.

4 Super Image Stabilizer (p. 46)

: When the Super Image Stabilizer Function is activated, this indication is displayed.

5 Digital Zoom (p. 46)

D.ZOOM: When the Digital Zoom function is activated, this indication is displayed.

Digital Effects (p. 44)

When a digital effect is activated, the corresponding indication is displayed.

6 Tape movement during recording

7 Tape Run Indications

REC: Recording (p. 22)

PAUSE: Recording Pause (p. 23)

>: Playback (p. 30)/Camera Search in forward direction (p. 24)

||: Still playback (p. 33)

>>>: Fast-forward/Cue playback (p. 30, 32)

<<<: Rewind/Review playback (p. 30, 32)

<<<<: High-Speed Rewind (p. 31)

CHK: Recording check (p. 24)

STDBY: Motion-Sensor-Controlled Recording Function Stand-by Mode (p. 64)

SNAP: Snapshot Recording (p. 52)

- When you record with the LCD Monitor facing forward using the Mirror Mode, only the Remaining Battery Power Indication, the Recording Indication [●] and the Recording Pause Indication [||●] appear. If the [] Indication appears, turn the LCD Monitor so that it faces backward and then confirm the displayed actual warning/alarm Indication.

8 Zoom Magnification (p. 28, 46)

When you push the [W/T] Zoom Lever up or down, the Zoom Magnification Indication and the Zoom Gauge are displayed.

9 Motion-Sensor-Controlled Recording Mode (p. 64)

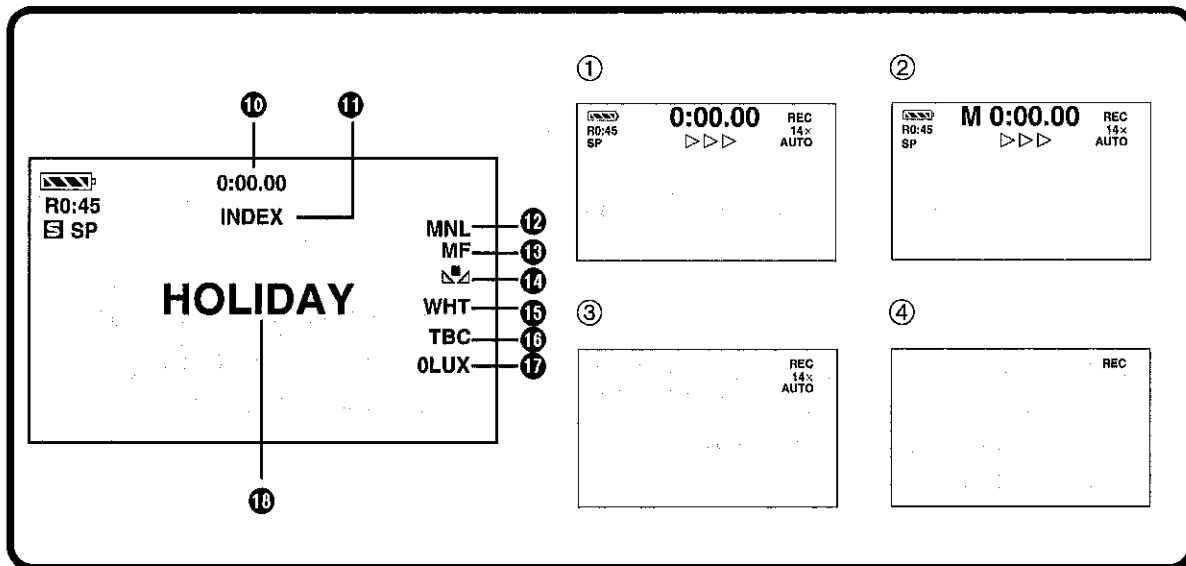
When the Motion-Sensor-Controlled Recording Mode is activated, this indication is displayed.

10 Tape Counter (p. 91)

The Elapsed Tape Time, Memory Stop Function Indication is displayed.

11 Index (p. 23)

The [INDEX] Indication flashes for a few seconds while an index signal is being recorded.



12 Recording Mode (p. 22, 26, 62)

AUTO: When the Auto Mode is activated, this indication is displayed.

MNL: When the Manual Mode is activated, this indication is displayed.

Programme AE Mode (p. 42)

The Programme AE Function offers the following settings:

- : Sports Mode
- : Portrait Mode
- : Low Light Mode
- : Spotlight Mode
- : Surf & Snow Mode

13 Manual Focus (p. 26)

If you select the Manual Focus Mode, the [MF] Indication is displayed.

Tracking Adjustment Mode (p. 32)

If you select the Tracking adjustment Mode, the [TRACK.] Indication is displayed.

14 White Balance Mode (p. 62)

: When the White Balance Mode is activated, this indication is displayed.

When the Movie Camera is in the Auto Mode, the above indication is not displayed.

15 Colour Indication for Digital Image (p. 38, 69)

This indication shows the colour selected for a title that you have stored in memory.

16 Time Base Corrector (p. 69)

When the Time Base Corrector function is activated, this indication is displayed.

Voice Zoom (p. 29)

V.ZOOM: When the Voice Zoom function is activated, this indication is displayed.

17 0 Lux Night View Mode (p. 66)

When the 0 Lux Night View Mode is activated, this indication is displayed.

Digital Noise Reduction (p. 15)

DNR: When the Digital Noise Reduction function is activated, this indication is displayed.

18 Title (large indication) (p. 60)

This indication shows the selected pre-programmed large title.

Changing the Indications

By changing the setting for [DISPLAY] on the [OTHER FUNCTIONS] Sub-Menu of the [VCR FUNCTIONS] or the [CAMERA FUNCTIONS] Main-Menu, the Counter Display Mode can be changed in the order shown in the above illustrations ① – ④ in [CAMERA] Mode, and ①, ② and ④ in [VCR] Mode.

① **ALL:** Elapsed Tape Time Indication (initial setting)

② **MEMORY:** Memory Stop Indication and Elapsed Tape Time Indication (p. 91)

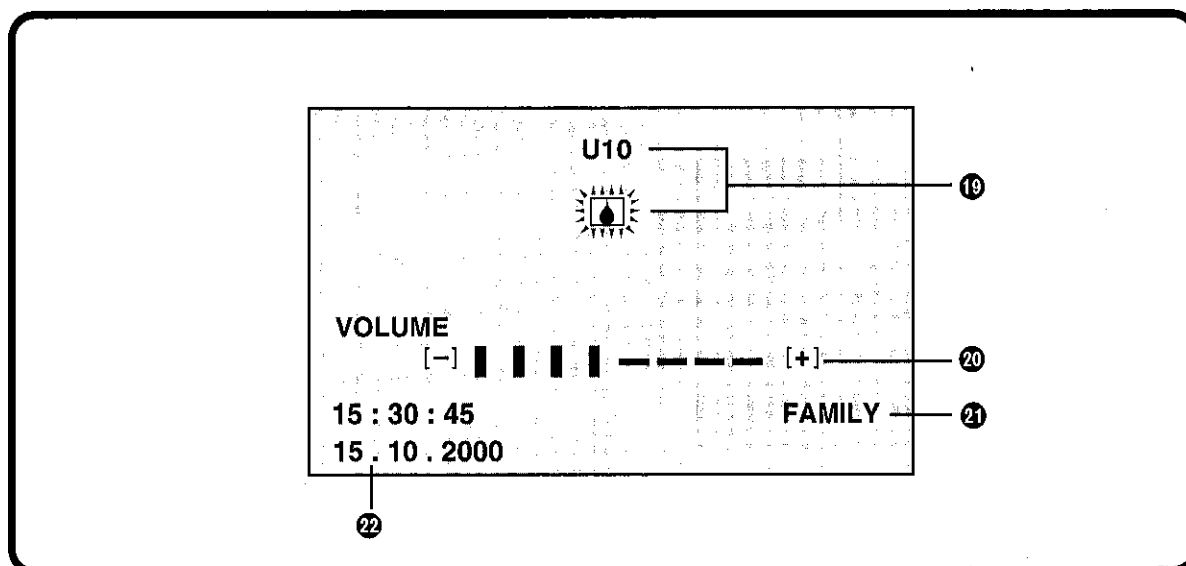
③ **PARTIAL:** No Counter Indication

Only a few indications are displayed so that all parts of the picture can be seen clearly. However, when you turn on the Movie Camera, all indications initially appear for a few seconds to inform you of the selected settings.

- In this condition, if you switch the Movie Camera over to the VCR Mode and then back to the Camera Mode, [ALL] is automatically selected for the Tape Counter Indication.

④ **OFF:** No Counter Indication

In this mode, only the Operation Mode Indications and Warning/Alarm Indications can appear. However, when turning on the Movie Camera, all indications appear for a few seconds to inform you of the selected settings.



19 Warning/Alarm

When any of the following indications lights or flashes, confirm the condition of the Movie Camera.

U10/☀: Condensation has occurred. (p. 86)

☒: The erasure prevention tab of the inserted cassette is broken out. (p. 19)

☒: No cassette is inserted. (p. 18)
 ☒: The Battery is discharged. Charge it. (p. 8)

☒: The button-type battery is exhausted. Replace it with a new one. (p. 11)

U11/☒: The heads are dirty. (p. 97)

☒END: During recording, the tape has reached its end.

20 Sound Volume (p. 31)

Use this indication to adjust the volume of the playback sound from the built-in speaker.
 With the [VCR] Lamp lit, pressing the [-VOL+] Lever toward [W] or [T], the [VOLUME] Indication appears.
 Then press the [-VOL+] Lever toward [W] or [T] to adjust the volume.

21 Title (small indication) (p. 60)

This indication shows the selected pre-programmed small title.

22 Date and Time (p. 29)

The time is indicated in the 24-hour system.

Specifications

S-VHS-C Movie Camera

Information for your safety

Power Source:	DC 7.2 V (Battery) DC 7.9 V (via AC Adaptor)
Power Consumption:	Recording: 4.5 W (When using Viewfinder) 6.2 W (When using LCD Monitor)

Tape Format: S-VHS-C/VHS-C Cassette

Recording/Playback Time: LP: 2 hours with EC60

VIDEO

Television System: CCIR: 625 lines, 50 fields PAL colour signal

Output Level: VIDEO OUT (PHONO); 1.0 Vp-p, 75 ohm terminated
S-VIDEO OUT;
Y Output: 1.0 Vp-p, 75 ohm terminated
C Output: 300 m Vp-p, 75 ohm terminated

Audio

Output Level/ Impedance: AUDIO OUT (PHONO); -6 dBV (47 kohm loaded)/less than 1 kohm

Audio Track: 1 track (Normal – Monaural)

Image Sensor: 1/5-inch CCD Image Sensor

Lens: 20:1 Power Zoom Lens (optical capability), F1.6
Focal Length; 2.9 – 58mm, Digital AI Auto Focus/Auto Iris
Filter Diameter; 43 mm

Monitor: 3-inch Colour LCD Monitor

Viewfinder: 0.24-inch Colour Electronic Viewfinder

Standard Illumination: 1,400 lx

Operating Temperature: 0°C–40°C

Operating Humidity: 10%–80%

Dimensions: 88 (W) × 118 (H) × 231 (D) mm

Weight: Approx. 850 g (without Battery)

AC Adaptor

Information for your safety

Power Source:	AC 100–240 V, 50/60 Hz
Power Consumption:	27 W
DC Output:	DC 7.9 V, 8.5 W (Movie Camera Operation) DC 8.4 V, 1.4 A (Battery Charging)

Dimensions: 72 (W) × 49 (H) × 143 (D) mm

Weight: Approx. 235 g

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Miscellaneous/
Care of Unit

Before Requesting Service (Problems & Solutions)

Power Supply

P1: The Movie Camera does not turn on.

S1: Is the Battery or the AC Adaptor connected correctly? Confirm the connection. (p. 6, 8)

P2: The Movie Camera has turned off automatically.

S2: If you leave the Movie Camera in the Recording Pause Mode for more than 6 minutes, it automatically switches off to protect the tape and to conserve battery power. (p. 23) Set the [CAMERA/OFF/VCR] Switch to [OFF], and then set it [CAMERA] again.

P3: The Movie Camera quickly turns off.

S3-1: Is the Battery discharged? When the Remaining Battery Operation Time Indication shows "0:00" or the [] Indication is flashing, the Battery is discharged. Charge the Battery or attach a fully charged Battery. (p. 8)

S3-2: Has condensation formed? If the Movie Camera is brought from a cold to a warm place, condensation may form inside. In this case, the Movie Camera automatically switches off and no operation can be performed except taking out the cassette. Wait until the Condensation Indication disappears. (approximately 2 - 3 hours) (p. 86)

Battery

P1: The Battery discharges quickly.

S1-1: Is the Battery fully charged? Charge it until the [CHARGE] Lamp on the AC Adaptor goes off. (p. 8)

S1-2: Are you using the Battery in a place where the temperature is very low? The ambient temperature greatly influences the Battery's performance. Its operation time becomes shorter in a cold place. (p. 87)

S1-3: Has the Battery reached the end of its service life? The service life of the Battery is limited. It depends on the way the Battery is used, but when the operation time even after proper charging is too short for normal use, the service life of the Battery has reached its end.

P2: The Battery cannot be charged.

S2: If the DC Input Lead is connected to the AC Adaptor, charging is not possible. Disconnect the DC Input Lead.

Normal Recording

P1: Recording cannot be started even though the Movie Camera is supplied with power and the cassette is inserted correctly.

S1-1: The tab of the inserted cassette is broken out. Insert a cassette with intact tab. Or cover the hole where the tab was with two layers of adhesive tape. (p. 19)

S1-2: Has the tape reached its end? Insert a new cassette. (p. 18)

S1-3: Is the Movie Camera turned on? (p. 22)

S1-4: Is the [CAMERA/OFF/VCR] Switch set to [CAMERA]? When it is set to [VCR], recording is not possible. (p. 22)

S1-5: Is the Condensation Indication [] displayed? When condensation has formed, no functions except taking out the cassette can be operated. Wait until the Condensation Indication disappears. (p. 86)

Other Recording

P1: No picture appears in Viewfinder.

S1: LCD Monitor is open (Except when recording with LCD Monitor facing forward). Securely close LCD Monitor. (p. 20)

P2: Picture on LCD Monitor is not clear.

S2: Picture quality is not properly adjusted. Adjust picture quality. (p. 17)

P3: The Auto Focus Function does not work.

S3-1: Is the Manual Focus Mode selected? If you select the Auto Focus Mode, the focus is adjusted automatically. (p. 26)

S3-2: Is the subject or recording situation suitable for the Auto Focus Mode? The Auto Focus Function does not work correctly for some kinds of subjects and recording situations. In this case, use the Manual Focus Mode to adjust the focus. (p. 89)

P4: Recording is not possible in the S-VHS ET format.

S4: Is [LP] selected for [REC SPEED] on the [OTHER FUNCTIONS] Sub-Menu? If you select [LP], [S-VHS ET] on the [OTHER FUNCTIONS] Sub-Menu is automatically set to [OFF]. Set [S-VHS ET] to [ON] again. (Setting to [ON] automatically changes the setting of [REC SPEED] to [SP].) (p. 14)

Cassette

P1: The Remaining Tape Time Indication is not correct.

S1: Is the tape length of the inserted cassette correctly selected? Select the correct tape length. (p. 19)

P2: The Movie Camera and cassettes underwent security X-ray inspection at an airport. Does this affect the cassettes?

S2: No, this has no negative influence on the Movie Camera or the cassettes.

P3: When playing back a cassette that was stored for some time, the picture is distorted.

S3: The cassette was stored in an unsuitable place (dusty, humid, hot, etc.) or near strongly magnetized objects or equipment. Unfortunately, there is no remedy. Always store the cassettes correctly. (p. 87)

Playback (Picture)

P1: No playback picture is reproduced when pressing the Play Button [▶].

S1: Is the [CAMERA/OFF/VCR] Switch set to [VCR]? When it is set to [CAMERA], playback is not possible. (p. 30)

P2: The playback picture is distorted or contains noise bars.

S2-1: The tape in the cassette is loose. Tighten it. (p. 18)

S2-2: The video heads are dirty. The "U11/⊗" Indication appears in the LCD Monitor. Consult with qualified service personnel.

S2-3: The tracking is not adjusted correctly. Adjust the tracking correctly. (p. 32)

S2-4: You are playing back an E55 type cassette. As picture distortion tends to occur with this type of cassette, we recommend that you use cassettes other than type E55 for recording. (p. 23)

P3: The Movie Camera is correctly connected to a TV, but no playback picture is reproduced.

S3: Did you select "Video Input" on the TV? Carefully read the operating instructions for your TV and select the channel that matches the input sockets used for connection.

P4: The playback picture is not in colour.

S4-1: The colour adjustment on the TV is not made properly. Adjust the colour control on the TV.

S4-2: The playback picture of scenes recorded with the 0-Lux Night View Function is in black and white. This is not a malfunction.

Playback (Sound)

P1: No sound is played back from the Movie Camera's built-in speaker.

S1: Is the volume set too low? With the [VCR] Lamp lit, push the [-VOL+] Lever, so that the [VOLUME] Indication appears. Then push the [-VOL+] Lever toward [+] to increase the volume or push it toward [-] to decrease the volume. (p. 31)

Others

P1: The cassette cannot be taken out.

S1-1: Is the Movie Camera supplied with power? Is the AC Adaptor correctly connected or the Battery correctly attached? To remove the cassette, the Movie Camera must be supplied with power, however, it is not necessary to set the [CAMERA/OFF/VCR] Switch to [CAMERA] or [VCR]. (p. 6, 8)

S1-2: The attached Battery may be discharged. Replace it with a charged Battery. (p. 8)

P2: No operation except taking out the cassette can be performed.

S2: Is the Condensation Indication [] displayed? If condensation has formed inside the Movie Camera, it automatically switches off and prevents all operations except taking out the cassette. Wait until the Condensation Indication disappears. (p. 86)

P3: The Remote Controller does not work.

S3-1: The batteries in the Remote Controller are exhausted. Replace them with new "AAA", "UM-4", "R03" type batteries. (p. 76)

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